THE RUBBER AGE

ESTABLISHED 1917

250 West 57th Street, New York

COVERS ALL PHASES OF THE PRODUCTION AND MARKETING OF CRUDE RUBBER AND THE MANUFACTURE AND DISTRIBUTION OF RUBBER GOODS

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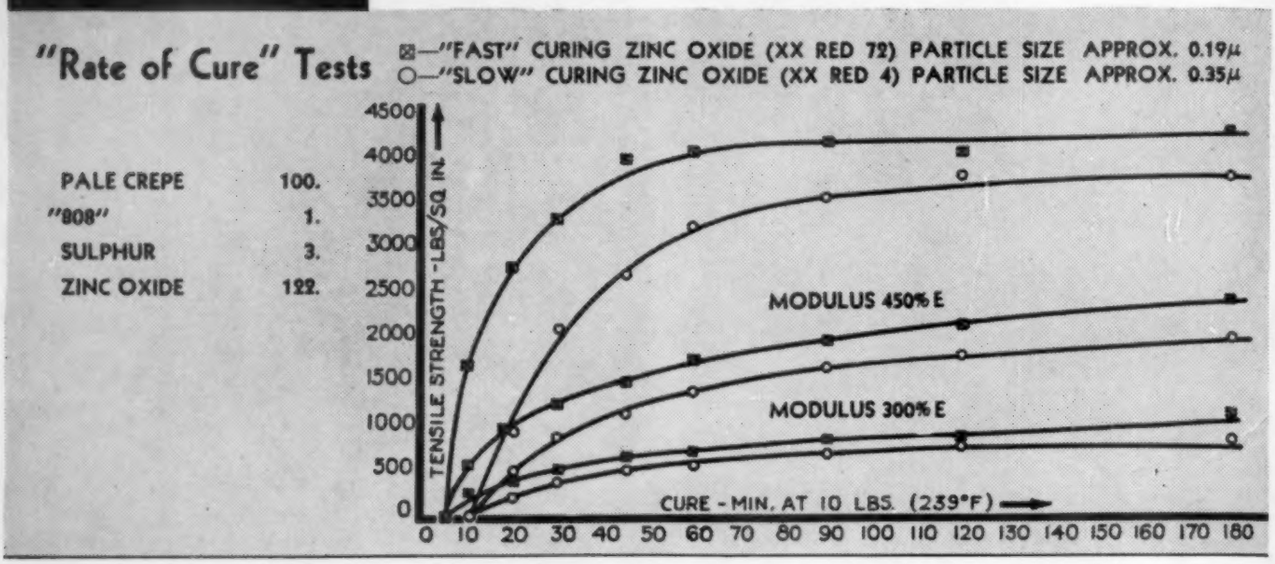
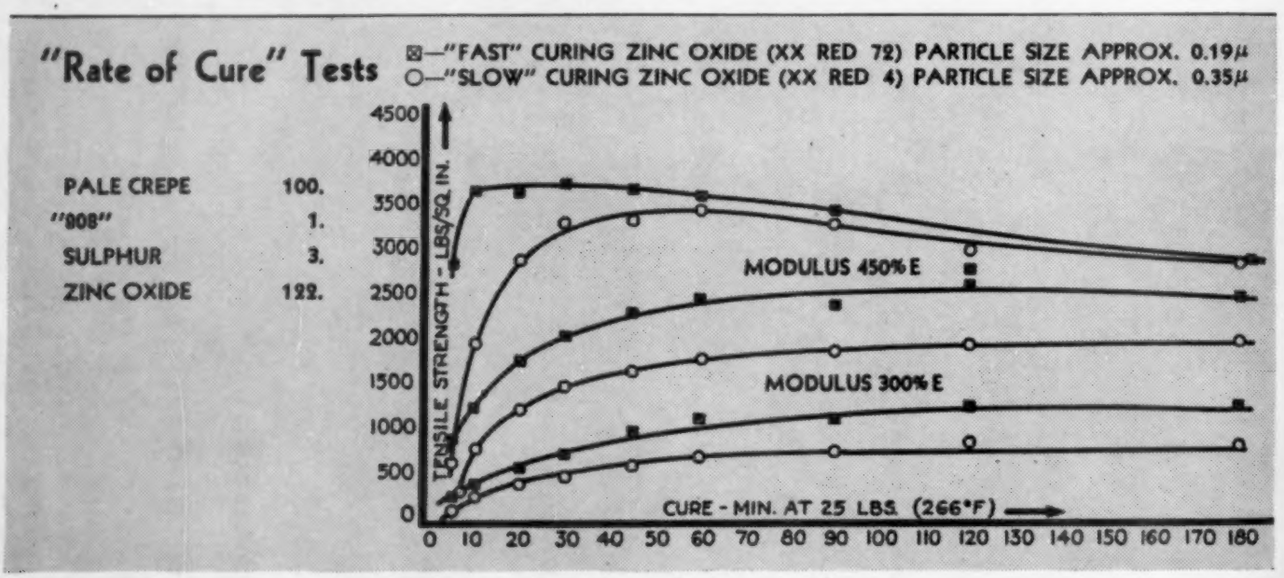
No. 14 of a series of charts showing a comparison of "fast" and "slow" curing zinc oxides with typical accelerators.


"Rate of Cure" Tests
⊠—"FAST" CURING ZINC OXIDE (XX RED 72) PARTICLE SIZE APPROX. 0.19μ
○—"SLOW" CURING ZINC OXIDE (XX RED 4) PARTICLE SIZE APPROX. 0.35μ
PALE CREPE 100.
"808" 1.
SULPHUR 3.
ZINC OXIDE 122.
TENSILE STRENGTH - LBS/SQ. IN.
MODULUS 450% E
MODULUS 300% E
CURE - MIN. AT 10 LBS. (239°F)
0 500 1000 1500 2000 2500 3000 3500 4000 4500
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

THE ANTI-SCORCH PROPERTIES OF XX RED 4 ZINC OXIDE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MODULUS 450% E
MODULUS 300% E
CURE - MIN. AT 25 LBS. (266°F)
0 500 1000 1500 2000 2500 3000 3500 4000 4500
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

XX Red 4 retards the curing rate of a compound accelerated with "808". The anti-scorch properties of XX Red 4 are demonstrated in the failure to obtain cures in 10 minutes at 239°F. and in the marked retardation for the 5 minute cure at 266° F. The differences between the "fast" and "slow" curing oxides are exaggerated in the lower temperature cures.

New Jersey zinc

The New Jersey Zinc Company

160 FRONT STREET NEW YORK

THE RUBBER AGE
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Foreign Tariff Walls Against American Rubber Goods

As Compiled by JOHN P. BUSHNELL

DURING the last Presidential campaign there was much discussion, pro and con, regarding the general policy of protective tariffs, reciprocal trade agreements, retaliatory trade impositions and other matters affecting the constantly narrowing of American export trade due to foreign tariff walls. In the light of the victory of the Democratic party and the campaign promises of the President to initiate plans for reciprocal agreements, it is interesting to note the present foreign barriers which are restricting the sale of our American rubber goods.

Prominent in the campaign oratory was the point taken that these foreign trade barriers are a direct result of our own high American protective tariff policy. The point had an excellent political campaign appeal, but even a cursory survey of present foreign tariffs would hardly justify this viewpoint. It may be contended in a large number of instances that American rubber goods in line with other rubber manufactured products from other countries were admitted, up until a few years ago, either free of duty or at a very nominal rate. However, within the last few years, the internal finances of the majority of nations have necessitated the inauguration of new tariff policies heretofore entirely foreign to the general trade programs of those countries. As a consequence, these tariff barriers against the American rubber goods represent in the majority of cases solely a desire to secure governmental revenue. It is only in the case of the very few rubber manufacturing countries abroad where it can be said that these tariff impositions are for the protection of local interests.

So universal has the placing of tariff barriers been instituted that practically only five small political units throughout the entire world now admit American rubber goods free, and these are Hong Kong, Aden, Canary Islands, Falkland Islands and Gibraltar. Even such small political units as the British and French West Indies now have their "tariff walls."

These trade barriers against American rubber goods take many forms. There are the general schedules of tariff duties levied in most instances by the specific countries. Many nations are finding it necessary, particularly in the cases of those with depleted currencies, to impose surtaxes on imports to bring the amount to be levied somewhat in line with what was expected at the higher rate of exchange. We also have port charges as in the case of Albania. Albania also imposes an extra 2 percent, which they collect for what they term "public instruction." There is also the interesting case of Austria, which imposes an arbitrary ad valorem duty based on current domestic value (including packing, cartage, inland freight, etc.) in a country of importation, or the actual selling price in the Austrian market to Austrian importers, ***whichever is higher.*** The value thus determined is further increased 10 percent and the ad valorem duty is assessed thereon.

American rubber manufacturers are fortunate in one respect in that through a competent State Department we have established with practically every commercial nation of importance what is termed "treaties of commerce and amity," under which, by international practice, the "favored nation" clause gives our exporters the advantages of the maximum reduction in tariff rates levied against other countries. The one exception to this is in the case of the British Empire, which grants a preferential tariff to its dominions and de-

pendencies, which we do not enjoy, although we are "a favored nation" with Great Britain in all other phases of commercial trade.

There are many indirect and hardly definable trade barriers also existant. Bolivia assesses a charge of 6 percent ad valorem for the mere certification of the consular invoice. Then, too, there are any number of intricacies in some of the tariff schedules. Weights and units of measure and value are not yet sufficiently internationally standardized. The problem of determining duties on rubberized fabrics, for instance. This is determined by the number of fibres in the weave and is somewhat confusing, to say nothing of attempting to determine values in such foreign units as piculs, kilograms, cwts., *legal* kilos and the like. It is needless to add that the present foreign exchange situation exerts a most important barrier in many instances, particularly where the foreign nation has gone off the gold standard or where its currency has otherwise depreciated in relation to the American dollar.

Trade barriers cannot always be associated with tariff duties. Often nationalistic policies, such as "Buy British," the well directed commercial propaganda in the case of China against Japanese goods, and the boycott of British goods in India, have proved effective. In the case of the "Buy British" campaign, this national feeling has seriously militated against the importation of American rubber goods.

In reviewing some of the tariff barriers against American rubber goods there are some instances found which border on the ridiculous, as, for instance, Tahiti in French Oceania assesses 25 percent ad valorem duty on tires and 12½ percent on hose, plus 14.4 percent as an "'ostroi de mer" tax and an import surtax of 4 percent on the invoice. In Ecuador one finds the peculiar unconditional prohibition against the importation of nursing bottles with rubber or glass tubes. The manner of payment of duties forms another problem, as in the instance of Honduras, where 60 percent of the duties must be paid in United States funds and 40 percent may be paid in Honduras currency at the current rate of exchange.

According to the prevailing tariff schedules the poor automobile owners in some of the very remote sections of the world have to carry a large burden in the way of import tariff charges on their tires. In a number of these instances the tariff walls border on the absurd. In the little island of Mauritius there is a 33 1/3 percent ad valorem tax on tires and a 15 percent tax is imposed in the Seychelles. Even in the smaller islands of the colonial possessions of France, such as the Pacific Island of New Caledonia, a 5 percent tax is imposed. A 4 percent ad valorem tax is levied in the Island of Guadalupe. All such taxes, of course, are unnecessary from any standpoint of protection and are merely levied as a revenue measure, but with questionable foresight. Imagine, for instance, the logic back of the present imposition of 5 to 10 percent tax on all rubber articles into French West Africa, Ivory Coast, Dahomey, Senegal, Mauretania, Niger, French Sudan,, Togo and French Equatorial Africa.

Custom duties are usually required to be paid in gold or silver at the parity of the currency of the foreign country in question, but in actual practice they are being paid in paper or other currency either at the prevailing exchange value or the prevailing ratio between the local gold and paper standard.

The accompanying table carries as approximately as possible the general tariff duties levied against American rubber manufactured goods into the leading foreign producing nations. There also follows a brief resumé* of the tariff impositions on American rubber goods levied by other countries. It must be understood that events in the world are happening with such startling rapidity that it is possible even before this is published some political action in some countries will have made changes in their tariff schedules. The following analysis of foreign tariff regulation, including the accompanying table, cover the leading trade barriers now existing against American rubber goods.

(*) The resumé of tariff impositions of other countries, mentioned here, will appear in the May issue, due to lack of space in this issue.—Editor.

TABLE I

Duties Against Rubber Goods Into Leading Countries

Country	*Tires and Tubes*	*Mechanical Goods*	*Drug Sundries*	*Footwear*	*Rubberized Fabrics*
Belgium	588 to 840 Francs Plus Luxury Tax (per 100 kilos)	287 francs per 100 kilos	17¼ to 23% Ad Val.	3 francs per pr. to 460 fcs. per 100 kilos	17¼% Ad Val.
France (a)	375 Francs (per 100 kilos)	4.95 fra. (per net kilo)	12% Ad Val.	14 to 56 fcs. (per 100 kilos)	120 to 3360 frs. (per 100 kilos)
Germany	125 Reichmarks (per 100 kilos)	60 Rms. (per 100 kilos)	100 Rms. (per 100 kilos)	800 Rms. per 100 kilos)	100 to 150 Rms. (per 100 kilos)
Italy (b)	550 Liras (per 100 kilos)	352 Liras per 100 kilos)	429 Liras (per 100 kilos)	4.60 Liras per pair	Duty per class of fabric, plus 25% Ad Val.
Japan	35% Ad Val.	40% Ad Val.	35% Ad Val.	57 to 65 Yen (per 100 kilos)	58 Yen per 100 kilos or 40% Ad Val. if silk
Holland	6% Ad Val.	8% Ad Val.	8% Ad Val.	8% Ad Val.	5% Ad Val.
British Empire					
United Kingdom	33 1/3% Ad Val.	10 to 15% Ad Val.	20% Ad Val.	20% Ad Val.	20% Ad Val.
Australia	42½% Ad Val.	55% Ad Val.	20 to 55% Ad Val.	42½% to 65% Ad Val.	55% Ad Val.
New Zealand (c)	40% Ad Val.	25% Ad Val.	20% Ad Val.	25 to 50% Ad Val.	15% Ad Val.
India	25% Ad Val.	10% Ad Val.	25% Ad Val.	25% Ad Val.	25 to 50% Ad Val.
South Africa	6d. per lb. on tires 7½d. on tubes	Free to 3d. per lb. on hose	Free	30% Ad Val.	Free
Irish Free State	33 1/3% Ad Val.	Free	Free	22½% Ad Val.	60% Ad Val.
Canada	35% Ad Val.	27½% Ad Val.	10 to 35% Ad Val.	40% Ad Val.	35% Ad Val.

(a) France also levies a general 6% import tax in addition to specific duties.
(b) Italy is assessing a 15% additional Ad Valorem tax in practically all products.
(c) New Zealand imposes an additional surtax of 22½% of the duties.

The New RUBBER BATHING SUITS

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Great Interest Aroused in Trade by Rubber Suits and Ensembles—Many Advantages Are Claimed

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Photo U. S. Rubber Co.

A group of all-rubber bathing ensembles in various styles and colors, as introduced by U. S. Rubber Company. In addition to the brassiere-and-trunks and the scarf-and-trunk styles of bathing suits in several combinations of white, green, blue, black and poppy-glo, the illustration shows a number of new accessories, including white beach hats, Howland cap, Howland shoes with suction cups, sandals, beach bags and rubber toys

DURING the past few months a new rubber product has been receiving a great deal of publicity in the public press—rubber bathing suits. From every southern beach come pictures of bathing beauties wearing the new suits; from many cities throughout the country come advertisements of department stores showing the new suits for southern wear; from foreign countries come many inquiries regarding the suits and who manufactures them. Such interest in this new product is expected to result in a large volume of new business for the rubber industry for the coming season at least, or until the public decides whether they like the rubber suits or not.

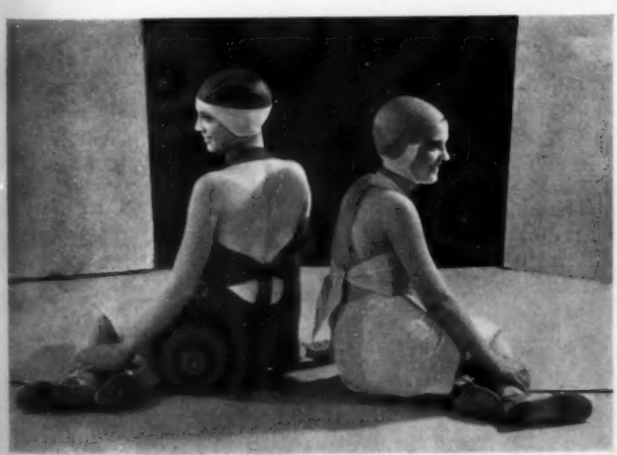


Photo Miller Rubber Co.

LEFT—All rubber ensemble. Smart knittex turban in two shades, blue and white, close fitting. Worn with two-piece suit in blue knittex with white lapels and sun-back. Shirt ties at waist in back. Shoes complete the blue and white knittex ensemble. Cork soles, covered toe

RIGHT—Red fabric toque placed over white hair makes smart rubber cap worn with white knittex two-piece rubber suit. Bandana shirt that has sun-back knots at waistline in back, with tailored lapels in front. Shirt snaps onto knittex shorts. Cork-soled Roman sandals of red knittex rubber

Are they practical? Will they be permitted on the beaches? Will they be exceedingly hot? Will they last? Will they be easy to take off? Are they attractive?—these and dozens of other questions are being asked on all sides. The answer to all of them can not be given at this time—not even by the manufacturers who are making these suits. Only time will tell.

There is, however, general agreement on several points: The suits are attractive and the colors are "gorgeous" and "alluring" and the suits are said to be easy to swim in. Some models who have worn them say they are hot—others do not find them so.

The all-rubber suits are being made by the U. S. Rubber Company; the Miller division of B. F. Goodrich Company and also by the sundries department of Goodrich. If any other companies are making rubber bathing suits in this country, it has not come to the attention of the editors of this journal. However, many or practically all of the manufacturers of wool and worsted bathing suits are featuring this season, suits made of lastex—the yarn developed by U. S. Rubber Company and now used in many different products. The all-rubber ensembles and suits are marketed by Miller under the descriptive name of "Knittex," and the U. S. Rubber Company's trade name is "Krepe-Tex." In both cases, the suits are all-rubber with an embossed surface simulating a textile finish resembling silk.

The advantages claimed for rubber bathing suits are:

Photo Miller Rubber Co.

TOP, left to right—All white knittex suit with stepin top, red and white fabric cap, red knittex sandals

Blue knittex suit, white lapels, shirt knotted in back, blue and white knittex turban and sandals

BOTTOM, left to right—Yellow suit, white bands and sandals, all in knittex finish—duo-tone water wave cap in platinum blonde

Flesh color and white knittex suit, white knittex sandals, extremely smart white molded turban in hair design de-luxe

They are attractive, they provide greater comfort because they dry off almost immediately, they do not absorb water, they do not shrink, they make swimming easier. It is claimed that these suits liberate the swimmer "completely from any sense of clothed confinement, a costume that seems to become part of the water itself, leaving you thrillingly free and unfettered." All this in addition to giving a "perfectly delightful new sense of ease and chic."

A writer in the *Indianapolis News* who viewed an exhibit of the new line of rubber suits, gives this vivid impression of their appearance and use: "Don't imagine these suits as the cold, slimy-looking kind of rubber that caps used to be made out of. It is a crepey material that looks like a dull finished matelasse and has the stretching qualities of lastex. It has the advantage of quick drying and does not absorb moisture so it becomes heavy. They do say swimming in these suits gives the most liberated feeling in the world—nothing to cling to you, water slishing around you and between you and the suit."

In connection with the suits, complete all-rubber bathing ensembles and other accessories are being offered, consisting of hats, cap, beach bags, shoes, sandals, toys, capes —many of which are shown and described in the accompanying illustrations.

The U. S. Rubber Company furnishes the following description of its ensembles and accessories: "For an ensemble effect and for protecting the shoulders from too much sun, a rubber cape has been designed to harmonize with the all-rubber suit. This is a new article in bathing apparel, and adds a distinctive touch of style.

"Dame Fashion may also be seen ruling the design of bathing caps. In fact, the United States Rubber Company sent a designer to Paris to produce in caps exact copies of Parisian hats. These caps are of the same material as that used in the all-rubber suits. They are very chic.

"In addition, there are numerous designs which combine a greater amount of utility with attractiveness. Included in this group are those which are molded to fit the head snugly and to keep the hair absolutely dry. One style also keeps cigarettes dry, as it has a waterproof pocket concealed in its lining.

Photo Miller Rubber Co.

Two piece knittex suit, maillot and shorts—flesh color, trimmed in white, worn with white molded turban in smartest interpretating hair designs, sandals in white knittex —cork soles

"Bathing shoes, likewise, have felt the touch of creative genius. As example, a classic appearance may be obtained by wearing the new Grecian sandal, the upper consisting entirely in rope and the sole in a crepe-cork combination. Or individuality may be expressed through the use of a bathing sandal whose top is made of lampwick material. A dressy effect is achieved with a high heel shoe featured by a new panomode weave, which is similar to but neater than the basket weave of last year."

The suits are available in a number of attractive colors and combinations of the following colors: dawn blue, white, nile green, poppy-glow, coral, bright blue, flesh color, French blue, black, yellow.

Soviet Synthetic Rubber

The Russian State Institute of Applied Chemistry in Leningrad has reported to the Soviet Government its success in obtaining synthetic rubber from acetylene. The Leningrad branch of the Scientific Research Institute of the Rubber Industry has carried out tests of samples of this synthetic rubber and claims that it is better than synthetic rubber obtained from other raw materials and in some properties it is superior to natural rubber. Cost of production of synthetic rubber from acetylene, they state, will be considerably lower than of rubber obtained by other methods. Abundance of natural resources necessary for this kind of rubber, limestone and coal, is expected to permit large scale production at an early date.

Rubber Printing Rollers

Improved Rubber Rollers Used in High Speed Printing—Require Frequent Grinding and Polishing

By C. L. TRAVERS
National Association of Printers' Roller Mnfrs., Inc.

RUBBER was first used for rollers on printing presses over fifty years ago, but rubber rollers were not mechanically perfect for any kind of printing until within the past seven or eight years. Today the rubber roller is the most successful roller in use where presses are operated at a speed of over forty thousand an hour. After the vulcanizing process, rubber rollers have to be ground so accurately that the entire surface is true to the thousandth part of an inch. The surface is then polished and the rollers are ready for use. Rubber rollers require very careful setting, and after running for a period of from six months to a year, due to their swelling the rollers have to be removed from the press and reground either by the publisher (who has installed lathes for that purpose) or sent to a roller maker who has the equipment for grinding and polishing rubber rollers. Different makes of rubber require grinding at different speeds of the lathes; also various kinds of emery wheels.

Rollers Should Not Be Set Heavy

Great care should be exercised in the setting of rubber rollers. A mistake that is made frequently is in setting them too "heavy." The "heavy set" causes a slight skid or wipe which shows on the foot of the type or other matter to be printed. Instead of covering completely, it is only partly covered and the print has not a sharp, clean appearance. Many pressmen have mistaken this condition for a lack of impression. The lightest possible "set" should be made on these rollers. The method of setting rubber rollers used by many of the best pressmen is a very old one—slip papers—a folded sheet of newsprint with a slip sheet of strong but not heavy paper about two inches wide and about twelve inches long inserted. Place this between the roller and the plate, and another between the roller and the inking surface.

After locking up the roller adjust it until the slip papers indicate by the pull exerted that the roller is making proper contact with both sides. There should be slightly more pull on the inking side than on the plate. When this has been done, turn the press over a few times and prove the work. It will probably be found that the pressman has to pull the roller a turn to the plate, but allowance for this had been made in setting it slightly heavier on the surface. As all rubber rollers have slight irregularities in the surface, they have to be set a little heavy at the start to make up for these. However, after the roller has been run for a few days it will be found that the surface lines up better and the rollers can then be reset much lighter.

The average newspaper rubber roller will stand from three to five grindings, depending on the quality of the rubber used. After this number of grindings, the roller is too far below the correct diameter to be of further service. It has been claimed that rubber rollers will last for twelve years. As they have not been perfected for that period of time, it is not possible to give credence to such a statement.

Rubber rollers have not been successful for letterpress printing, as they lack the pliability necessary for this kind of work. In letterpress printing the form is made up of a variety of surfaces of various heights-to-papers, light and heavy type, cuts made by various methods, electros and brass rules, each requiring varying degrees of impression and varying flows and treatments of inks, which in turn requires a great deal of make-ready. Regardless of how carefully this is done, there will be slight irregularities in the form, and these irregularities rubber rollers will not take up, resulting in an unsatisfactory distribution of ink. If rubber rollers were used excessive impression would be necessary, and this causes most of the troubles in process color printing, such as wearing plates, digging out hooks, slipping packing and wrinkles in sheets.

Used for Water Color Printing

Rubber rollers are successful when used for water color printing on letterpresses. This type of printing is produced from rubber plates, and as these do not require as much pressure as metal plates, less packing is carried on the press. The packing should be hard, as the object is to print with the minimum amount of squeeze. Too much pressure would tend to spread the surface of the rubber plate, causing blurry, uneven edges, and on a cylinder press cause a ripple and spread the color. Very little makeready is required. What is necessary is done by underlaying the plate. There is no impression through the sheet so offset is eliminated and slipsheeting is unnecessary. In this type of printing there is a very large field for the use of both rubber plates and rubber rollers.

Rubber rollers are used in lithographic work with varying success. Some pressmen claim that rubber rollers lift or deposit the ink in a mottled manner. Litho inks have a linseed oil vehicle and rubber will absorb some of it, because rubber is also a vegetable substance. This usually shows on the ends, where there is more rubber exposed. These rollers will swell and require regrinding the same as newspaper rollers. In this particular field there is room for considerable improvement in rubber rollers.

Wiegand's Rubber Heat Engine Installed in German Museum of Natural Sciences

THE rubber pendulum or rubber heat engine, developed by W. B. Wiegand, Research Director of Binney & Smith Company, to demonstrate the Joule effect by which heat is converted into useful work, has received high scientific recognition as a result of its being installed as a permanent exhibit in the Thermodynamic section of the Physics division of the German Museum of Natural Science in Munich.

It will be recalled that this interesting machine, illustrated herewith, was exhibited at various meetings in the

Rubber Heat Engine in Operation

The above illustration shows the apparatus as assembled and in operation at the Munich Museum, with an electric heater mounted on either side of the vertical support. Its method of operation is as follows: An ordinary pendulum of slow period contains a rubber band attached to the bob, the other end being fixed to the upright support. This rubber band is stretched to, say, 300 per cent. elongation. Behind the upright is a metal sector so arranged that when the pendulum has reached the extremity of its swing, the rubber strip is clear of the screen. During the rest of the oscillation it is in its shadow. The Joule effect is brought into play by starting the pendulum. The radiant heat shrinks the band, pulling back the bob. Then the band cools off in the shadow of the sector, relaxes and thus allows the bob to swing out to the other side, whereupon the band is once more heated by the radiant energy, contracts, and so repeats the oscillation, which continues as long as the heat energy is radiated in this manner. When the electric current is shut off, the pendulum stops.

United States and Canada several years ago, after its initial showing at a meeting of the Institute of the Rubber Industry in London on September 14, 1925. On that occasion, Mr. Wiegand presented a paper on "Tendencies in Rubber Compounding," and used the rubber heat engine to illustrate how the formulae of the gas laws could be directly applied to the Joule effect in rubber. "It is true," said the author, "that viewed as a gas, the behavior of rubber is very imperfect, and we must allow in all our calculations for quite serious departures from reversibility.

"If we treat the rubber stress-strain curve as we do the pressure-volume curve of a gas, keeping in mind the fact that with increasing temperatures the rubber curves move towards the load axis just as in gases the isotherms move upward on the pressure axis, we can describe for rubber a cycle of changes exactly corresponding to Carnot's cycle for a gas. That is, we allow the specimen to contract isothermally at a high temperature absorbing heat, cool it at constant elongation to a lower temperature, then stretch the rubber isothermally, thus giving out heat, and finally heat up the sample at constant elongation to its original temperature. Thus we have (at least in theory) come back to the original state.

"The equation for the useful work obtainable from this cycle is $\frac{dQ}{Q} = \frac{dT}{T}$, where T is the absolute temperature, Q is the heat absorbed through the Joule effect at the higher temperature, and dQ is the heat available as mechanical work.

"If the Joule heat is a large enough factor in relation to the friction heat to justify the belief that Carnot's cycle may be usefully applied to rubber, we ought to be able to make a rubber heat engine working exactly on the same theory as a gas engine or a steam engine."

The machine was demonstrated throughout the United Kingdom a few years ago by Dr. B. D. Porritt, Director of the Research Association of British Rubber Manufacturers, and later by the well-known physicist Prof. Dr. Lothar Hock before various Physical Society meetings in Germany.

It was as a result of these exhibitions that the Munich Museum of Natural Science learned of the rubber heat engine. Recognizing the fundamental significance of the device in the study of physical science, the director of the Museum suggested that the apparatus be donated in perpetuity to the museum. The offer was accepted by Mr. Wiegand and the machine was shipped abroad with complete assembly and operating directions and a sufficient supply of rubber bands to run it for a number of years.

Dispersaid—New Wetting Agent

DISPERSAID is a specialized product embodying the wetting properties of the higher alcohols in combination with those of sulphonic acid derivatives. It is a light, cream colored powder, readily soluble in all aqueous solutions, and can be handled freely without toxic results.

Dispersaid shows its wetting out power very markedly in connection with the saturation of fabrics by means of rubber latex and in this connection its activity has been found to be greater than that of similar materials now offered.

Another use for Dispersaid is for the dispersion of pigments in latex or in water generally. For the dispersion of carbon black, which is generally held to be the most difficult pigment to incorporate in latex or other aqueous suspensions, the manufacturers recommend about 5 per cent of Dispersaid calculated on the dry weight of carbon black. If for certain purposes it is considered desirable to calculate the dispersing agent on the solution rather than on the dry pigment, adding about 0.5 per cent Dispersaid is recommended.

Dispersaid functions in the presence of electrolytes which would precipitate soaps. It is comparatively free from dissociation and so recommends itself for latex compounding for insulated wire requirements. There is, however, a slight dissociation of Dispersaid and the ph value of aqueous solutions is very slightly on the alkaline side. This property has been found of distinct value in certain applications. In addition the exceptional purity and power of Dispersaid offer certain advantages entirely unique. (Binney & Smith Company.)

The Importance of Factory Cooperation in Selling

By DR. H. E. FRITZ*

THE importance of a nationally known or nationally advertised name cannot be over-emphasized. It is extremely gratifying not to be asked for an explanation of one's own company in contacting potential customers. I find this reaction wherever I go. I need make no explanations for our name, because, through years of consistent effort, it has been brought before the trade.

This brings me to the main point, the importance of factory cooperation in selling.

The real producers in an institution such as ours, and I mean specifically by that the factory workers, their supervisors and development and research engineers, are largely responsible for any high plane of leadership which is attained.

They are the captains of industry and the directors of our business destiny, for should they fail in their duties the destructive effect of such neglect would provoke very serious consequences.

The activities of every worker in our shops and in our engineering and research organization transmits itself directly through the sales organization. Substantial continued confidence in our ability to serve the customer is directly reflected by the way in which all divisions of the organization function.

Let us assume that a demand article is developed, presented to our salesmen and in turn presented by them to the market.

There is nothing more demoralizing to these men in the "front lines" of the commercial battle than to have any customer complain about goods below the standards he has been taught to expect. "Sight quality," the appearance of the finished article, is extremely important. So, too, is serviceability.

Factory men create these articles and the salesman bases his solicitation on their serviceability, quality and appearance, on assurances given him that these products have been made properly by factory workers, and put through such rigid inspections that he can confidently recommend their use for certain purposes. We dare not deviate from these standards. It is the production organization upon whom the ultimate responsibility of maintaining the uniformity of quality depends.

It is a salesman's job to land the first order with a new customer or a renewal order from an old customer, and the salesman usually feels he has done his part of the job if he succeeds in getting the order on the right basis. Whether we do any more business with this customer after this first step depends largely upon how workers in the production departments function.

For example, if we:

(1) Build an article which meets the market demand at a profit,
(2) Facilitate and expedite deliveries,
(3) Maintain our established reputation for quality and service,
(4) Be careful that the articles arrive at their destination in good condition by proper marking and packaging,

then workers in the production department have performed a fine service, because the results outlined could not have been possible if the importance of factory cooperation in sales had not been clearly understood throughout the entire organization.

On the other hand, if we:

(1) Permit defective articles to go to the customer,
(2) Fail to make delivery promises,
(3) Fail to be competitive through waste and extravagance,

then the production departments have contributed largely toward destruction of our customers' confidence in us, have been the major factor in wreckage of sales efforts, and as truly business culprits as an employee who embezzles his employer's funds.

Cooperation Between Sales and Production

There are a few cardinal points which must be emphasized in building up a spirit of cooperative effort between sales and production departments of any successful company. Among them are:

(1) A complete understanding of the other fellow's problems, whether they be in sales or production.

(2) A sympathetic viewpoint toward the work the other fellow is striving to perform.

(3) Willingness to meet the needs of the customer quickly and effectively.

If you study the other fellow's problems as carefully as your own, you will realize that he is as important a factor in putting a product to successful use as you are. Having once understood the other fellow's problem, it becomes much simpler to be in sympathy with his viewpoint regarding sales, production or other phases of cooperative industrial effort.

Of course, if you have determined to close your mind on certain subjects and not listen to reason, it is almost impossible for you to have a sympathetic viewpoint toward any other factors in industrial life but yourself. You had bet-

*Manager, chemical sales division, The B. F. Goodrich Company, Akron, Ohio. Extracts from an address February 24, 1933.

ter, however, make a strenuous effort to keep open-minded and willing to concede his just due to the other fellow, for radical individualists, who are not cooperative with others are not liable to last long in the present era of business.

I can cite at least five or six specific cases in which various departments of our organization have mastered this idea of cooperation between sales and production forces.

Every employee of an industrial or business concern must consider himself or herself a salesman. In discussions with friends and associates, if you are a loyal employee, it is only natural for you to point out the merits of your company's products.

The only difference between salesmen and other members of an organization is that his is a full-time selling job, while the others, selling is a part-time job, their full-time occupation being the continued maintenance of quality and service which the salesman teaches his customers to look for.

We have an outstanding example of such salesmanship in one of our factory employees. He created such a favorable impression with one customer during the installation of a job that the vice-president of the company will not permit him to live at a commercial hotel during his stay in their city. He is taken into the vice-president's home and treated as one of the family.

The reason is that this factory employee has performed so effectively and efficiently in every contact with the customer and his character is so unimpeachable that his companionship is desired by this vice-president.

It goes without saying that this man is a first-class salesman for our organization.

Now to divert from the major importance of the production departments in any sales efforts and to briefly discuss salesmanship in itself, as I view it.

Briefly, salesmanship consists of tireless effort and the application of common sense with a smile.

Any executive formulating his plan of operation for a definite period must have a definitely defined plan of solicitation and accomplishment. This, in general, is:

(1) All sales plans must aim at profitable and not merely volume selling.

(2) We must sell our products to our own salesmen as well as to our customers.

(3) We must stand squarely behind the men in the field, giving them new things to talk about and a quality article.

However, if a sales executive attempts to direct his men down the same identical path, he is doomed to failure, as everyone knows that the eccentricities and varied circumstances of a human enter into sales effort at every turn. There need be only one command: "Get the Order," but this may be obeyed in many different ways.

I was recently in the office of an executive vice-president as he was going over one of his salesmen with a fine-toothed comb. Here was the reason:

The vice-president had just talked to a major customer and had been advised that there was something drastically wrong with their quotation. They had so advised the salesman in the district (the same one now under the vice-president's ire) and had received an unsatisfactory answer.

This inquiry, on which five companies had quoted, stood roughly at $50,000, except for the one company in question which had quoted $30,000. The buyer put it up to the salesman of this company, saying: "Bill, there is something wrong with your quotation. Will you re-check your figures and tell me of your findings?"

The salesman remarked that his company had checked their figures very closely and had gone as low in price as they could, and still make a reasonable profit, but if their price was out of line he could make an additional concession of five per cent.

This buyer then dismissed the salesman in disgust and called the vice-president of the salesman's company. I was hearing the tail end of this story on poor business methods and watching the salesman get the punishment due him.

This is but a typical example of how many salesmen are responsible for the suicidal price declines as are the buyers.

Our own policy has always been to be conservative in the estimate of the worth and merits of our products. When we are asked to submit rubber articles for service which we believe is too severe for rubber, we invariably frankly attempt to inform the customer of the facts.

To say "No" to a customer sometimes takes more courage than to accept the order, especially under present conditions when every industry is so eagerly grasping for business.

However, a top-ranking salesman will refuse business if it is not on a sound basis from the standpoint of serviceability, durability and economy, as well as a reasonable profit for his company, and be certain that the future will vindicate his action.

Serving the customer honestly and frankly is one prerequisite for repeat business and the cultivation of business friends. If a customer has absolute faith in your ability to answer his questions honestly, he has no reluctance in recommending your products to his superiors.

Now we come to another major point, the prevalence, especially at this time, of conversation between buyer and salesman which has no reference whatever to the sale being discussed, or to the business relationships between the two men and their companies. I refer to the wave of discussions on every subject, and especially economic, which, however interesting they may be, do not contribute anything to the immediate sale of goods, but in fact, often discourage sales.

In various interviews, customers have asked my opinions regarding the condition of affairs in the country, in the world, my ideas, what the outcome would be, etc. Whereupon I immediately switch to discussion of subjects that are pertinent to my product, and to the customer's needs for any service I can render him.

My capacity is that of a salesman, and not a prophet or politician, and discussion of conditions other than those bearing on sales may lead to complications which I may not be able to handle. Handled diplomatically, the customer usually understands that in the end he is paying for the time I spend in his office and is willing to get down to the meat of the situation—the relationship of himself as buyer and myself as seller—as quickly as possible and without spending valuable hours or minutes in speculation on economic theories or practices.

We hear complaints about reduced expenses, reduced budgets and the hardships resulting from these curtailed expenses, but if a salesman really gets enjoyment from his work these things are easily subordinated. After all, one of the fundamentals of success in selling or any other business is the work which you are doing in building up good will toward your industry and speeding up the marking of products which meet the needs of mankind.

Motorized Reduction Units

A COMPLETE line of motorized reduction units under the trademark "IXL Powered Gear," has been announced by Foote Bros., Chicago, Ill. The new lines cover a wide range of application in sizes and types ranging from ½ H.P. to 150 H.P. capacity and ratios ranging from 2 to 1, up to 3600 to 1, the various types offered permitting use with right angle straight line or offset drives, either horizontal or vertical.

Motor characteristics may be varied to suit the particular application including normal starting torque, high starting torque, high slip, adjustable speed and multi speed, etc.

There are two main divisions of the new line, the Radiating Worm gear type and the Helical gear type. The worm gear line covers ratio ranges from 4 to 1, to 60 to 1 single reduction style and up to 3600 to 1 in the double worm reduction type. The built-in gear unit embodies the same design and construction features of the company's "Hygrade" worm reducers and are almost noiseless in operation, conservatively rated and highly efficient.

A unique and original feature of radiating case design results in greatly increased heat radiating capacity that materially increases the continuous load ratings of the worm type units.

The helical type is made in single and double and triple reduction ratios—providing a range of output speed ranging from 4 R.P.M. to 850 R.P.M. and horsepower capacities up to 150.

The I-X-L "Radiating" Worm Type Powered-Gear. Made in sizes from ½ to 25 H. P. reduction from 4 to 1 to 3600 to 1.

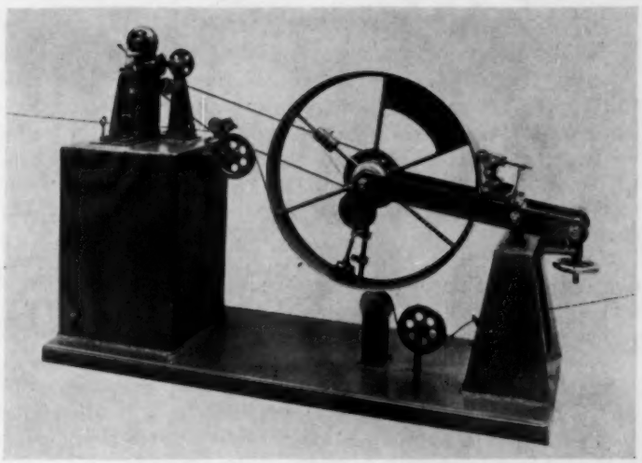
The I-X-L Helical Gear Type Powered-Gear. Made in sizes up to 150 H.P. speed range from 4 R. P. M. to 850 R. P. M.

Anti-friction bearings are used throughout in the standard design of units but sleeve bearings may be supplied for special applications where extreme quietness of operation is essential.

Cable Marker and Cutting Machine

A MACHINE for marking, measuring and cutting electric wire and cable has recently been introduced in England by B. & F. Carter & Co., Ltd., Rochdale. The accompanying illustration shows how the machine appears in operation. It can be adapted to mark or cut the cable in multiples of 5 yards or 15 feet up to a maximum length of 300 feet.

The machine is arranged with instantaneous trip motion which releases the guillotine for cutting the cable at any required number of yards or feet. This guillotine is sent back into position by treadle motion. The machine is built up on a fabricated steel welded base plate with standards and pillars made of the same metal electrically welded into position which makes the bed plate very strong and practically indestructible.



Carter Machine for Marking and Cutting Cable

The machine is a self contained unit and is driven by the cable being drawn through the user's coiling machine. It has an all-aluminum measuring wheel 2½ yards in circumference able to handle braided cable, lead or rubber covered twin cable. The manufacturers state that with this machine the number of short lengths left on a reel are decreased; it can be ascertained easily what length of cable is on the reel, and the cable can be continuously cut off at any predetermined length.

SAFETY HINTS

IN a recent bulletin of the Rubber Division, National Safety Council, several hazards frequently met in rubber factories are described and means of overcoming them suggested. For instance, a female employe, while painting seals on tires, was working in a location between a moving belt conveyor and the table on which was placed the paint containing a great amount of gasoline. Static generated due to the fact that one hand was resting on the conveyor while she reached over to the paint can to dip her brush, causing a flash, resulting in a badly burned hand. Upon investigation it was found that the table and conveyor framework were grounded, but the operator was standing on a wooden platform. A metal plate was placed on the platform directly in front of the table thereby making a complete ground for the possible static.

Another case cited was the following: Shredded auto tire stock was being blown to the roof, through a line, and distributed to digesters. A leak occurred in the line. As a result the stock was leaking from the conveyor onto the roof. In order to reach the location of the leak, the general foreman had to step out onto the skylight to look around the corner of the belt conveyor house. On several previous occasions he had crossed over the skylight by stepping from one angle iron to another and then onto the galvanized roof.

The leak caused the skylight at that point to become covered by approximately 12 inches of stock, and when he stepped out onto what he thought was the angle iron he stepped onto the glass and fell through, landing 50 feet below. He received a fracture of the skull, causing his death.

Recommendations have been made to protect skylights wherever there is a possibility of employes walking out on them.

Further Details on "Plioform"

IN our February issue we described the properties and uses of "Plioform," the resin recently developed by Goodyear Tire and Rubber Company and for which many uses are contemplated. Since the original announcement we have been able to obtain a more technical description of the material through the courtesy of H. R. Thies, of the Goodyear Research and New Products Development Department, as follows:

"Plioform" is a thermo-plastic molding material produced from the best grades of pure white pale crepe rubber and offers an entirely new set of physical properties in so far as rubber products are concerned.

The pale crepe rubber is put into solution and is chemically reacted on, in this condition. After the completion of the reaction the rubber is precipitated in a fine granular form, in which form it is thoroughly washed and dried. The fabrication of this synthetic resin into finished, usable

material, is carried out on an ordinary mill where the colors and loading pigments are incorporated. The resin handles on the mill in much the same manner as rubber does except that it mills at a much higher temperature, is much tougher, and is quite hard when it is cold. The milled sheets are ground and the product is marketed in a granular form under the trade name of "Plioform."

This material is a true thermo-plastic and is available in a number of grades, with molding temperatures ranging from 260 deg. F. to 310 deg. F. The physical properties of the material are quite interesting. It has a tensile strength of 4,000 to 5,000 pounds; compressive strength of 8,500 to 11,000 pounds, and a transverse of 7,000 to 9,000 pounds. The specific gravity of "Plioform" is 1.06 in the unloaded condition and its water absorption for 24 hours immersion is 0.02 per cent or less.

The material is resistant to all the strong alkalies and to most acids except concentrated nitric acid and concentrated sulphuric acid, is insoluble in alcohol and acetone, and its electrical properties are very good in that it gives high surface resistivity and low moisture absorption in humid atmospheres.

"Plioform" works very rapidly in the mold, being a true thermo-plastic it is not necessary to allow time for a cure, and articles can be molded just as fast as the mold can be heated and cooled. Scrap pieces and mold over-flow can be remolded as such and their use offers an opportunity for saving in material costs.

Thick sections of the material are quite rigid, but in thin sections it is fairly pliable. Its resistance to impact is quite high, as is also its resiliency.

Hardness tests show that "Plioform" somewhat resembles hard rubber in this respect, measuring 88 to 90 on a Shore hard rubber durometer. There are also other properties that are somewhat similar, i. e., acid and alkali resistance and good electrical properties, but here the similarity ceases. In contrast to hard rubber, "Plioform" contains no sulphur, or sulphur bearing materials, and in this respect is unique among rubber products.

Its cold flow is less than that for hard rubber. Tests on this property have given values as low as 6/10,000 of an inch per ½ inch length under a pressure of 4,000 pounds per square inch at a temperature of 120 deg. F., the pressure being applied for a period of 24 hours. The resin taken alone is of light amber color rather than the black of hard rubber and this property lends itself to the development of a number of interesting and beautiful colors.

New Mold Cleaner

TO clean molds most efficiently by the use of Zip mold cleaner, the following procedure should be used:

The cleaning tank should be made of approximately ⅜" sheet iron. The size of the tank will naturally depend on the size of molds that are to be cleaned. Equip the tank with steam coils so that it is possible to get a temperature of from 175 to 190° F. Do not use any bronze fittings in the construction of the tank. If the cleaning tank is erected inside the factory, it is recommended that a hood be placed over the top of it to carry away the fumes that come off during the cleaning operation. Some of the factories have found it to be better to erect the tank outside the plant and, in this way, eliminate the installation of a hood.

In the cleaning operation, it is recommended that the solution be allowed to reach the most efficient cleaning temperature—approximately 180° F. It is also recommended that a hot mold be used. However, in case a cold mold is used, it will require a longer time for cleaning. Molds should be cleaned satisfactorily in twelve to fifteen minutes, providing the solution is up to temperature and the mold is of approximately the same temperature. After the cleaning operation is completed, the mold is removed from the cleaning tank and washed thoroughly with clean running water. However, in some factories, instead of cleaning with running water, the cavities of the mold are sprayed with a jet of steam after removal from the cleaning tank—this operation being followed with a thorough washing with water. It is only in the case of extremely dirty molds that the spraying of steam is necessary. It should not be necessary to do any further brushing or polishing.

This material is not recommended for any molds other than steel or cast iron. Although some plants have used it for cleaning aluminum molds, we do not recommend it as general practice. In so doing, it has been necessary to reduce the cleaning time to approximately five minutes. Standard Chemical Company, Akron, Ohio.

B. R. V.

B. R. V.* is a selected heavy coal tar distillate with a specific gravity of approximately 1.140. It is a dark colored heavy oil, which flows at ordinary working temperatures. B. R. V. is substantially non-toxic and boils substantially above 300° C. It is not saponifiable.

The chemical characteristics and high boiling range of B. R. V. are such that it is especially recommended in the manufacture of reclaimed rubber as reclaims treated with B. R. V. do not dry out; they are smooth and readily processed; give high tensiles and elongations; retard deterioration and resist checking and cracking.

B. R. V. offers good resistance to wear and is heat resisting. For this reason it is also recommended in the manufacture of rubber articles which must withstand service tests under abnormally high temperatures, such as pneumatic and solid bus tires, inner tubes, steam hose and various other types of mechanical goods, friction stocks, air bags and tire repair stocks.

*Reg. U. S. Pat. Off. by The Barrett Company, New York, N. Y.

REVIEW SHELF

• Monthly Review of New Books, Pamphlets, Company Catalogs, Service Bulletins, House Organs, etc., Pertinent to the Industry.

INDUSTRIAL COOPERATIVE GARDENING, issued by B. F. Goodrich Company, Akron, Ohio. 24 pp. 7½ x 11 inches. Paper cover.

Frank discussion of the problems involved in a cooperative farm plan, costs of the operation, and results are concisely given. Profusely illustrated, the volume is almost a day-by-day recital of a summer's labor by industrial workers who have been assisted in getting back to the soil.

T. G. Graham, Goodrich vice-president, tells in a foreword of discussions on how the company could best assist former and part-time workers who were anxious to utilize idle time, resisting to the last the necessity for placing their families on charity rolls.

"Out of the discussions came the decision that a project was required which would provide 150,000 man-hours of work during the summer months and assure the participant as great a reward as possible," Graham says.

"A cooperative farm operated on mass production principles seemed the most practical solution of our problem, so our industrial gardening experiment embracing about 200 acres of vegetable planting was started.

"It was recognized that those we wished to help had extremely limited, or no buying power, so that established producing and marketing facilities would not be disturbed if a plan was evolved by which the men consumed what they produced and created no surplus for sale or barter.

"This project provided over 1,000.000 pounds of vegetables for 900 workers and their families during 1932, the head of the family being rewarded in proportion to the hours worked by him on the project."

Executives in any industry, federal, state, county and city officials and welfare workers and economists may obtain copies of the volume by writing to The B. F. Goodrich Company, Akron, Ohio.

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THIRTIETH ANNUAL REPORT OF THE BUREAU OF SCIENCE, Philippine Islands. 1932. Being the report for the year 1931 by William H. Brown, director of the Bureau of Science, Department of Agriculture and Natural Resources. 90 pp. and cover.

The report covers the activities of the bureau as a whole and the various divisions in detail for the fiscal and calendar year of 1931.

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DIGEST OF PATENTS DEALING WITH RUBBER LATEX IN ROAD CONSTRUCTION MATERIALS, issued by the Technical Research and Development of New Uses Committee of the Rubber Growers' Association, London. January, 1933. Paper cover, 58 pp

This booklet contains numerous abstracts of patent literature on the subject of the use of rubber latex in road construction materials, divided into the following sections: (a) Preparation of purely bituminous emulsions (for information only), (b) Compositions containing latex or raw rubber plus bitumen, etc., (c) Compositions containing vulcanized rubber and bitumens, etc., (d) Compositions containing latex or raw rubber and cements, etc., (e) Compositions various; not necessarily bituminous, (f) Methods of attachment to surfaces, etc.

INDEX TO A. S. T. M. STANDARDS AND TENTATIVE STANDARDS, issued by the American Society for Testing Materials, Philadelphia. October, 1932. Paper cover. 119 pp.

This booklet comprises a valuable reference to Specifications, Methods of Testing, Recommended Practices, Definitions of Terms, Charts and Tables of A. S. T. M. Standards. Under the heading of Rubber Products are listed specifications for the various rubber products for which specifications are available, such as, Hose, Cotton Goods, Friction Tape, Gloves, Insulated Wire and Cable, Matting and Pump Valves.

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SEASONAL VARIATIONS IN INDUSTRY AND TRADE, prepared by Dr. Simon Kuznets of National Bureau of Economic Research, Inc., New York City. 22nd report. 455 pp. Price $4.00.

This book, including references and seasonal indexes for over 700 monthly series, gives the results of research conducted over the last few years at a cost of several thousand dollars. The rubber industry is one of those selected by the author for detailed analysis.

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FACTORS TO BE CONSIDERED IN MAKING AN ADVERTISING APPROPRIATION, issued by the Policyholders Service Bureau of the Metropolitan Life Insurance Company, New York City. Paper cover, 27 pp.

This report has been prepared for the purpose of illustrating the prevailing methods followed by a variety of companies in arriving at advertising appropriations. The information presented also includes an analysis of what the appropriation usually provides for, and methods of keeping the advertising budget flexible.

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THE STANDARDS YEARBOOK 1933, compiled by the Bureau of Standards, United States Department of Commerce, Indexed, 250 pp., 6 x 9 inches; available from Supt. of Documents, Washington, D. C., Price $1.00.

The present is the seventh edition of this standardization annual and is full of suggestions and data for all engaged in standardization. The many aspects of the subject call for a concise summary for busy men who most need to keep in touch with the latest advances in the standards field.

In it are outlined the activities and accomplishments of not only the bureaus and agencies of the Federal government, but also those of States and counties. It contains a resumé of the standardization work of scientific and technical societies and trade associations. A brief account of international cooperation in standardization is followed by a summary of the activities of the national standards associations of the various countries.

The Standards Yearbook has proved indispensable to all interested in any phase of standardization in America and abroad. It is a standardization reference book, summarizing current standardization activities and outstanding accomplishments during the year.

It informs the manufacturer of the current standardization movements affecting his industry. It informs the purchasing agents of new standard specifications, and informs the scientist engaged in research as to current research projects which may lead to standardization. To the average reader it will prove a mine of information on the present status and trend of standardization in all fields of industry, commerce, science, and government, with reference to sources of further information.

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THE VANDERBILT NEWS, issued by R. T. Vanderbilt Co., New York City. March-April, 1933, issue.

This issue is devoted entirely to low-sulfur compounding and is an elaboration of the paper on the same subject which Dr. A. A. Somerville presented at the recent meeting of the Rubber Division, A. C. S. in Washington, D. C. In addition to a general article on low-sulfur compounding which shows a way to improvements in the quality and durability of rubber products, the issue contains formulae for pure gum stocks, white stocks, gas black stocks and a number of commercial compounds, with the various properties of each stocks as determined in the company's laboratories. The general conclusions as to what low sulfur is good for are given in the following statements: 1—Rubber goods that must stand elevated temperatures either in storage or in service. 2—Rubber goods that must withstand the swelling action of oils, greases or fats at elevated temperatures. 3—Rubber goods that must resist oxidation and be free from discoloration in light. 4—Rubber goods in which high resiliency and low power loss are desirable.

Editorial Comment

Save the Rubber Division

REPORTS from Washington give us the disheartening information that under the new administration's economy plan the commodity divisions of the Department of Commerce will be either abolished entirely or combined with one of the general divisions of the Bureau of Foreign and Domestic Commerce. If such action is taken, it should not be taken until a thorough investigation is made of the value of each division to the industry which it serves.

It is realized, of course, that retrenchment of business and governments is necessary and the rubber industry must expect some curtailment in the services it has received from government agencies. We speak for the rubber manufacturers, however, when we say that the Rubber Division of the Department of Commerce has proved its value to the rubber industry many times over in the comparatively few years of its existence and the total abolition of this division, if such a move is contemplated, would not be sound economy.

Likewise, to lump the services of the Rubber Division in any general division would not be practical or advisable due to the lack of understanding of such a general division with the particular problems of this industry. It is only such understanding that makes the service worth rendering at all. It will be recalled that the establishment of the commodity divisions of the Department of Commerce was due to the fact that the general divisions covering many fields of activities and services had demonstrated their inability to deal with the peculiar needs of any one industry. If the Commerce Department is to perform its appointed function of assisting and fostering American commerce it is surely not too much to ask that some of its staff be specialists who understand the problems, methods of working and the language of the principal American industries.

The Rubber Division has more than justified the expense involved in maintaining it. Always moderately staffed, the division has been able to collect and furnish to the rubber industry authentic and valuable information and statistics on both the domestic and foreign rubber markets. This service has been of value because the administrators of it knew what information was needed before they collected and compiled it. The Division has assisted rubber manufacturers in scores of ways, not the least of which was helping them to meet the exacting requirements of selling in foreign countries.

Sound economy requires that the authorities in Washington empowered to make reductions in the personnel or activities of the various divisions arrange to continue at least the more important functions of the rubber division under the direction of someone with a thorough knowledge and understanding of the rubber industry and who at the same time has the confidence and support of rubber manufacturers and exporters. The rubber industry has complete confidence in the ability, understanding and energy of the present personnel of the Rubber Division. At least some of this staff should be retained to direct the more essential rubber services. If the working out of the "new deal" make it necessary for the rubber industry to assist financially in the maintenance of such services, the industry should be given an opportunity to do so before the services are eliminated and the staff disbanded in a hurried, thoughtless wave of "economy."

Tire Price Stabilization

THE unity with which three of the "big four" tire companies acted last month in dropping their third and fourth line tires and reducing prices at the same time and the later falling in line of the fourth manufacturer, at least as far as prices were concerned, speaks well for the possibilities of concerted action in the future.

For years each of the larger tire manufacturers has been acting independently—often at cross purposes with each other. That there was a good reason for such steps cannot be denied—but there was, of course, no real reason why each should blindly lead the other to new low price levels. Recent court decisions have cleared the atmosphere somewhat and made possible steps which could not be taken in the past. With an industry offering its products so near cost, an upward trend in tire prices in the near future cannot be construed as an unfair practice—and now that an uniformity in tire prices has been reached, we can only hope that the same uniformity will hold at whatever new levels may be found necessary in the future to make a justifiable profit on invested capital.

Too long has the tire industry thrown its profits to the winds—the time has now come, we hope, when those who have held faith in the rubber industry will be repaid for their forbearance.

Definite Signs of Improvement

IT is somewhat early to state definitely that business is on the upgrade. Not enough impetus has been gained under the "new deal" of the present administration to warrant an assertion that the depression is licked. However, there is a feeling in the air that the long sought corner, around which business appears to be lurking, will soon be discovered.

In various industries reports from many sources indicate an improvement over previous months—as witness car loadings, automobile shipments, steel, lumber and textiles since the middle of March. Commodity prices have remained firm with a decided upswing in rubber and cotton in the past few weeks. Enough of such trends are being reported to warrant the improved sentiment which is pervading industry.

CURRENT • NEWS
of the Rubber Industry

APRIL, 1933

Rubber Division A. C. S. Spring Meeting in Washington D. C. is Well Attended

Meeting Draws 125 to Hear Ten Interesting Papers —Joint Banquet With Paint Division—W. F. Wile Makes Interesting Address

THE Rubber Division, A. C. S., held its Spring meeting at Hotel Raleigh, Washington, D. C., on Tuesday and Wednesday, March 28 and 29, in conjunction with the 85th meeting of the society. Despite present conditions a larger number of members was on hand than expected. At the two technical sessions there was an attendance varying from 100 to 125.

Of the eleven papers scheduled to be given at the meeting only ten were delivered, the paper on the "Variability of Rubber from the Plantation Viewpoint" by G. A. Sackett of Goodyear Tire and Rubber Company being postponed until a later meeting. The new policy of the Division in sending out copies of all papers in advance to several reviewers proved very satisfactory in that each paper received constructive criticism which resulted in considerable discussion by the members. The complete list of papers and their abstracts appeared in the March issue of THE RUBBER AGE.

The meeting was divided into two technical sessions held during the mornings of March 28 and 29, the afternoon of the first day being devoted to sightseeing trips. On the evening of March 28 the banquet of the Division was held in the ballroom of the Mayflower Hotel and it proved to be a very excellent banquet and entertainment furnished through the efforts of the Dinner and Entertainment Committee, consisting of G. F. A. Stutz, New Jersey Zinc Company, R. F. Tener and P. L. Wormeley, Bureau of Standards, H. A. Gardner and L. P. Hart of the Gardner Laboratories. The dinner was a joint affair with the Paint and Varnish Division. During the dinner the committee provided excellent entertainment consisting of singers and dancers followed by feats of magic by Walter Grote of the Research Division of United Carbon Company, Charleston, W. Va. Mr. Grote's card tricks and other sleight of hand stunts were greeted with a great deal of enthusiasm by all those present. Table favors were distributed through the courtesy of the Naugatuck Chemical Company (Rubber Scotch Purse), and the New Jersey Zinc Company (Zinc Cigarette Box).

Among guests of the Division were Dr. Chas. L. Parsons, Secretary of the American Chemical Society, Dr. H. E. Howe, Editor of *Industrial Engineering and Chemistry*, and Wm. Frederick Wile, the well-known political expert. Following brief talks by Drs. Howe and Parsons and F. E. Bartell, Chairman of the Paint and Varnish Division and Toastmaster L. B. Sebrell, Chairman of the Rubber Division, Mr. Wile addressed the members for over an hour on the current political situation. Mr. Wile's talk was most interesting and was interspersed with interesting anecdotes which enlivened his talk to a great extent. He dwelt on the qualifications of each member of President Roosevelts' cabinet and served to show that instead of being just an average cabinet it really compared very favorably with the cabinet of any president in the last twenty years.

Business Meeting Held

At the business session of the Division which took place after the final paper on Wednesday morning, Dr. H. E. Simmons, Secretary-Treasurer of the Division, read his report which showed that there were at the present time 344 members of which 130 had not as yet paid their dues. The financial report showed that there was on hand at the last meeting $2,116.02 and income since that date of $3,179.62, making a total income of $5,295.64. Expenses up to February 15 were $2,834.55, leaving a balance on hand of $2,461.09. Dr. Simmons also read a letter calling to the attention of the Division the rubber exhibition to be held in Cologne, Germany, during June, 1933.

During the discussion of the paper on "Aging of Rubber" by B. L. Johnson and F. K. Cameron of the University of North Carolina, Dr. Cameron brought up the subject of lack of research on the fundamentals of rubber technology which resulted in a discussion on the advantages of gathering and co-relating all available technical information on rubber. Mr. Boggs of the Simplex Wire and Cable Company told of the lack of fundamental chemical research, most of the work being done today being physical or mechanical in character. He stated that new tools were required and suggested work on fundamental research. It appeared, however, that the consensus of opinion was that before proceeding with such research that the Division should endeavor to gather together all of the available information on various aspects of rubber technology and it was moved that a committee be appointed to draft a program of procedure to summarize the fundamental research data now available.

At the Executive Committee meeting which followed the regular meeting it was decided that at the next meeting of the Division which would be held in Chicago during the week beginning September 11, 1933, the usual two technical sessions would be lengthened so as to include two full days of four sessions, half of which would be devoted to a report on a review of rubber literature along the following lines: 1—Structure and nature of rubber. 2—Nature of vulcanization. 3—Pigmentation. 4—Acceleration. 5—Electrical properties. 6—Aging. The names of a number of leading technologists were suggested for each of these heads and it was expected that they would be approached with the request that they co-operate in preparing a review of the literature on each subject.

Among the foreign guests who attended the sessions of the Division were Messrs. Walter Demarche, Technical Director of O. Englebert Fils and Cie, Belgium, and W. Baird of the Imperial Chemical Industries, England. Mr. Baird was accompanied to this country by Mr. W. J. S. Naunton of the Imperial Chemical Industries but due to illness he was prevented from attending the Division meetings.

TIRE SHIPMENTS SHOW INCREASE IN JANUARY

Shipments of pneumatic casings for the month of January, 1933, amounted to 2,596,585 casings, an increase of 42.8% over December, 1932, but were 20.2% below January, 1932, according to statistics released by the Rubber Manufacturers' Association, Inc.

This organization reports production of pneumatic casings for January, 1933, to be 2,257,846 casings, an increase of 13.9% over December, 1932, but were 34.8% under January, 1932.

Pneumatic casings in the hands of manufacturers January 31, 1933, amounted to 7,236,845 units, a decrease of 5.3% below December 31, 1932, stocks, and 8.5% under January 31, 1932.

The actual figures are as follows:

PNEUMATIC CASINGS

	Shipments	*Production*	*Inventory*
Jan., 1933 ..	2,596,585	2,257,846	7,236,845
Dec., 1932 ..	1,818,700	1,982,681	7,644,359
Jan., 1932 ..	3,253,086	3,462,485	7,911,771

Stability is Seen in Tire Industry After Price Reduction and Elimination of Grades

IN what was declared to be a move to correct the chaotic conditions existing in the tire industry, the Goodrich, U. S. Rubber and Goodyear tire companies announced on March 21 and 22 reductions in price on their first and second line tires about 20% and the elimination of their third and fourth line tires. The reduction in price brought the first and second grade tires of these companies down to within 10% of the comparable grades of the mail order houses.

Just prior to the announcement of these three companies, the Seiberling Rubber Company had on March 20 reduced their tire prices 2½ to 10%—a reduction which that company had not made at the time early in February when Firestone had lowered its prices to meet the mail order reductions.

Following closely on the announcements of Goodrich, U. S. Rubber and Goodyear, on March 28 the Firestone Tire and Rubber Company reduced its tire prices as of March 21 to the levels of the three other large tire producers but declined to eliminate its third and fourth lines, claiming that to do so would be contrary to the company "principle of keeping the independent dealer in a position not only to meet prices of standard tires but also the prices of special brand tires sold by mail order houses and others."

Following the lead of these four companies, most of the other tire manufacturers have met the lower prices with the result that for the first time in many months the industry is established on an even price basis—even if that basis is too low to permit of a profit.

In a letter to the stockholders of the Firestone Tire and Rubber Company, Mr. H. S. Firestone on March 24 assailed the action of the three other large tire companies in eliminating "the particular lines which the independent dealer needs to compete against special brand tires, and retained the multitude of special brand lines which are serious competition for their own dealers."

Disappointment with the action taken by the tire industry was expressed by W. O. Rutherford, president of Pennsylvania Rubber Company who stated that he had hoped that the tire companies reporting heavy losses had seen the errors in their thinking and that any new move would be in the nature of a price revision upward.

STRIKE AT MASTER TIRE PLANTS STILL IN FORCE

The strike of factory workers at the Findlay and Cuyahoga Falls plants of the Master Tire and Rubber Corporation, which started last month has not been settled at this writing though about 125 employees were said to have resumed work at the Cooper plant at Findlay, Ohio, on April 5. The strikers at Cuyahoga Falls voted to continue the deadlock though factory officials reiterated that they expected to resume operation during the week of April 10.

The strike was called on March 20 at Findlay and two days later at Cuyahoga Falls in protest to an alleged 50% cut in wages since January 1 and a total of about 75% since June 1, 1932. Offers of factory executives to raise wages somewhat were turned down by the strikers and representatives of the U. S. Department of Labor to bring about a settlement have been unsuccessful. The demand of the strikers, it is said, is for a return to the wage scale in effect at the end of 1932.

Rubber Mace Replaces Cops' Nightsticks

The policeman's "billy club" has been replaced by the rubber mace in Indianapolis because it costs considerably less and a blow from it does not mar the features.

The mace, according to Michael F. Morrissey, chief of police, is a flat piece of rubber, rectangular in shape and containing a slot through which the fingers of the hand may be slipped to obtain a grip.

It delivers a stunning slap, but if more force is needed, its edge may be used with as much effectiveness as the old-time club, now in universal use.

The mace costs only 65 cents as compared with $4.80 for the regulation "copper's stick," Morrissey said.

N. J. ZINC AWARDED SINGMASTER PATENT

After a trial lasting three weeks in the United States District Court, for the Southern District of New York sitting in Equity, Judge Caffey handed down on March 27 a decision awarding to the New Jersey Zinc Company, U. S. Patent No. 1,725,742 for pigmenting rayon, which patent was issued to James A. Singmaster in 1929 and by him assigned to Tubize Chatillon Corporation. The decree will enjoin the defendants from operating under the patent and will order an accounting for profits.

The Bill of Complaint alleged that in 1926 Singmaster, while in the employ of the Zinc Company as General Manager of its Technical Department and obligated under its regulations to disclose and assign to his employer all patentable ideas originating with him while so employed, conceived the idea of incorporating pigments into the cellulose mass from which rayon filaments are spun; that he failed to disclose his invention to the Zinc Company, but left his employment on May 1, 1927, and after obtaining a patent on his invention in 1929 sold and assigned the same to the Tubize Company; that the Tubize Company never recorded the assignment to it of the patent and that when it dealt with Singmaster it had knowledge of his obligation to the Zinc Company.

Mr. Singmaster denied that he conceived the invention while in the Zinc Companys employ, denied his obligation under the regulations of the Company to assign any inventions he might make; alleged that he had disclosed his idea to the Zinc Company and that the latter had waived and released its rights therein; and alleged that he did not make his invention until seven days after his resignation took effect. The Tubize Company alleged that it was an innocent purchaser for value from Singmaster. The relief prayed for by the Zinc Company was a decree directing the defendants to assign the patents in question to the Zinc Company, account for profits, and for an injunction.

The New Jersey Zinc Company's laboratory and research department constitute one of its most vital and expensive departments, employing upwards of 100 research men, all of whom are potential inventors, and many of whom including the defendant Singmaster have for over twenty years under the regulations of the Company conceived and developed patentable ideas and as a matter of established routine under their contract obligation assigned to the Company applications thereon. The Company brought this suit not only to recover its property but also because common knowledge in its research department that any employe might successfully evade the regulations and by resigning keep for himself the fruits of his inventive talent in violation of his contract obligation would intolerably impair the morale and conduct of its research department.

Glycol Awards Fellowship

The Clemson Textile Department, South Carolina, has been awarded a fellowship by the Glyco Products Company, Inc., of Brooklyn, N. Y., makers of many new and interesting products, among which are thickening and emulsifying agents, synthetic resins, glycol and glyceryl products, and foam producers.

For this school year the fellowship has been awarded to Messrs. M. L. Huckbee and C. D. Wyatt, students at the Clemson Textile Department, who will conduct studies with a view to finding new and extended uses for the above Glyco products.

Van Cleef at World's Fair

The firm of Van Cleef Bros., Chicago, manufacturers of "Dutch Brand" rubber and chemical products, have contracted for space in the Century of Progress International Exposition which will take place in Chicago beginning June 1, 1933. The Electric Building of the Electrical Group, which will house the "Dutch Brand" Exhibit, was dedicated recently.

Approves Rubber Bathing Suits

Rubber bathing suits will be O. K. on Chicago beaches. Walter W. Wright, superintendent of playgrounds and beaches, viewed the new rubber models recently as worn by three young women, and gave them his approval.

Rubbers Sold at Service Stations

Women's toe rubbers are being advertised and sold by Firestone Service Stores, Providence, R. I., for 25 cents a pair in connection with any purchase of tires, gasoline, oil, or other service station service.

New Rubber Chemical Factory

Meriden Laboratories, Inc., has been formed in Meriden, Conn., to manufacture abrasives and powders used in the production of plastic articles. Harry Degiuliam is president; William Israel, vice-president, and Harry Israel, treasurer and secretary. Paid-in capital is $10,100. Offices are located at 20 Pratt street, Meriden, Conn.

Fisk Plants Bring $3,030,000 at Auction; Operation to Continue at Chicopee Falls

REAL estate, buildings and other property of the Fisk Rubber Company, in receivership since 1929, were sold at auction at Chicopee Falls on April 3 to Orrin G. Wood of Boston, representing the so-called Fisk reorganization committee, for $3,030,000. The only other bidder was the General Tire and Rubber Company of Akron, Ohio, which was represented by its president, William O'Neill.

Sale of the property to the Wood committee was regarded as virtually assuring continuance of the Fisk company as a going concern and continued employment to more than 1,000 Chicopee workmen. The property has a book value of $23,000,000, and consists of certain stocks and other securities, patents, trademarks and other similar property together with land and buildings in Chicopee Falls, Pawucket and Westerly, R. I.; Jewett City, Conn.; New Bedford, Mass.; Cudahy, Wis., and New York City.

Confirmation of the sale was made by Federal Judge Lowell, of Boston, on the next day.

Ferdinand Eberstadt, head of the committee representing holders of bonds and notes of the Fisk Rubber Company, said that "the price bid by the Wood committee for the Fisk assets, in receivership, indicates a substantial and satisfactory cash distribution on the Fisk Rubber Company bonds and notes represented by the committee."

According to the *Journal of Commerce*, Orrin G. Wood early this month was optimistic regarding the concern's future. Machinery has been set in motion to retrieve the prestige Fisk enjoyed before falling into financial difficulties.

It was reported that the company will concentrate on its Chicopee plants and will try to dispose of other property, including in all probability its New Bedford fabric mill.

Telegrams have been sent to all Fisk dealers soliciting orders and promising attractive prices. Mr. Wood hopes to see renewed activity under way within two weeks, along with distribution of cash to note and bondholders.

Operations of the Fisk Rubber Company, as reported on March 13 by the receivers, resulted in a net loss for 1932 after all charges excepting provision for receivership expenditures of $136,363, against a net loss in 1931 of $128,517. In the earlier year, however, there was a special reserve for doubtful accounts of $883,383, which was not charged in 1932. The company had sales of $11,566,329, against $18,188,069 for 1931.

The balance sheet at the close of 1932 showed net working capital of $14,549,029, against $15,204,993 a year before. Cash and United States securities were $9,011,331, against $6,492,761 at the close of 1931. Receivables were $2,804,334 and inventories $2,641,554.

The reorganization committee of the Fisk Rubber Co. selected on April 11 Edward D. Levy of New York City as president of the new operating company. Charles A. Dana, one of the receivers, will be chairman of the board. In addition to the above, the following will be members of the board of directors: Karl H. Behr, Carl P. Dennett, William E. Gilbert, Theodore G. Smith, William B. Stratton, John C. Traphagen and Orrin G. Wood.

Spadone Machine Moves

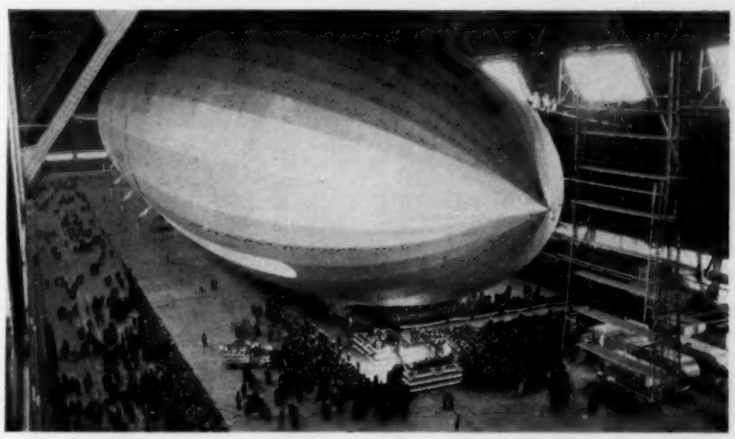
Effective April 10, the Spadone Machine Company, manufacturers of rubber equipment, will be located at new offices at 122 East 25th Street, New York City.

Exchange Location Settled

It was announced officially on March 20 that the Commodity Exchange Inc., has completed arrangements for establishing its home in the International Telephone Building at the corner of Broad and South William Streets. The Commodity Exchange, Inc., represents an amalgamation of the Rubber Exchange of New York, the National Raw Silk Exchange, the New York Hide Exchange and the National Metal Exchange, and is expected to start functioning as a separate and complete entity on or about June 1st of this year.

Announcement of the completion of housing arrangements for the new institution was made at a luncheon tendered the governing committee of the Commodity Exchange, Inc., by Colonel Sosthenes Behn, Chairman of the International Telephone and Telegraph Corporation.

U. S. S. Macon Christened in Akron



View showing scene at the Goodyear-Zeppelin airdock, Akron, Ohio, on Saturday, March 11, when the U. S. S. Macon was christened by Mrs. William A. Moffett. The first trial flight was scheduled for April 10 but due to the U. S. S. Akron disaster it is likely that the flight will be postponed until later in the week.

RUBBER EXHIBITION TO BE HELD IN COLOGNE

Following conferences between the "Dechema" (Deutsche Gesselschaft für chemisches Apparatewesen); the Verein deutscher Chemiker; the Verein deutscher Maschinenbauanstalten and the civic authorities of Cologne it has been decided that without interfering with the preparations in hand for the chemical plant exhibition "Achema VII," the date should be changed to the week of May 18-27, 1934. The exhibition "Kautschuk" of the German Society for Rubber Industries, which was to be held in conjunction with Achema VII, will take place independently in Cologne, beginning June 2, 1933.

This exhibition will be an attempt to depict the historical production and manufacture of rubber throughout the world. Commencing with the primitive production and manufacture carried on by the Brazilian natives and the establishment and development of the East Asiatic plantations, the exhibition will follow up the increasing manufacture and application of rubber to the point which this most important industry has reached today. Manufacturing methods in actual progress and exhibits of raw materials will be supplemented by exhibits of all the finished rubber manufactures found on the market.

Dr. E. A. Hauser is acting as technical advisor to the exhibition authorities, Messe und Ausstellungs-Ges. m. b. H., Messeplatz, Deutz, Cologne.

Armstrong Issues House Organ

The Armstrong Rubber Company, Inc., West Haven, Conn., makers of automobile tires and tubes, has started issuance of a monthly consumer organ, "The Armstrong Traveler," which is distributed through tire dealers with their own imprints. The first issue was printed in red and black on 18 x 12 inch pulp stock, four pages. The make-up is that of a tabloid newspaper, and most of the contents are devoted to appeals to buy Armstrong tires from local "agents," as the dealers are termed throughout.

DEWEY ELECTED BOSTON RUBBER GROUP CHAIRMAN

The Boston Rubber Group, A. C. S., held its spring meeting on April 6 at the University Club, Boston, and had as its guests thirty members of the Northern New England Section of the American Association of Textile Chemists and Colorists. The number of rubber men in attendance was approximately one hundred.

Mr. E. M. Hayden of the Stanley Chemical Company read a very interesting paper concerning the nature of lacquers and emphasized particularly the necessary properties that lacquers should have for use on rubber products; particularly emphasizing the problem of obtaining good adhesion.

Mr. S. G. Byam of DuPont read a paper in which he gave some facts concerning the tremendous consumption of textile fabrics used in the proofing industry, particularly for raincoat fabrics, and also outlined in considerable detail the problems of manufacture with which the proofer is faced.

The new officers elected are Mr. Bradley Dewey, President of the Dewey & Almy Chemical Company of Cambridge, Chairman; and Mr. J. J. Sindler, Technical Superintendent of the Converse Rubber Company, re-elected Secretary-Treasurer.

FAST DRIVING CAUSES LOW TIRE MILEAGE

Why fast driving causes rapid tread wear is clearly shown by the United States Rubber Company in a study of the relation between car speed and power transmitted by rear tires.

Figures established in a representative case, with the car on a smooth, level road, revealed that at 30 miles per hour the horsepower exerted by rear tires against the road was 5.1; at 40 miles per hour the horsepower rose to 9.6; at 50 it advanced to 16.1; at 60 it increased to 25.5; at 70 it jumped to 38.3; and at 80 it mounted to 55.2.

From these figures it will be seen that an increase in speed from 30 to 40 miles per hour means an increase of 88 per cent in the power which the tires must transmit at the point of road contact. At 50 miles per hour the power needed is more than three times that required at 30; at 60 it is exactly five times as much; at 70 it is seven and a half times as great; and at 80 it is 11 times more.

Every bit of power transmitted by the tires tends to produce slippage of the tire against the road, and this slippage increases the rate of wear of the tire tread. When power figures, such as these, are studied, it is easy to understand why the fast driver does not get anything like the mileage that is obtained by the more moderate driver.

New Chemical Company

Robert J. King Company, Stamford, Conn., manufacturers of chemical solvents used in the rubber industry, has been incorporated under the laws of Connecticut with paid-in capital of $42,500 in property. Robert J. King is president; Currier Lang, vice-president and treasurer, and R. K. Colwell, secretary. The company's plant is located on Sunnyside avenue, Stamford.

New York Group Meeting May 5

The next meeting of the New York Rubber Group is scheduled for Friday, May 5, at the clubrooms of the Building Trades Employers Association, 2 Park Avenue, New York City. The schedule calls for three papers as follows: "The Effect of Oils and Various Chemicals on Duprene Compounds," by Ernest Bridgwater, E. I. du Pont de Nemours & Co.; "Commercial Uses of Rubber, Thiokol and Duprene with Oil and Solvents," by W. L. White, Raybestos-Manhattan, Inc.; "Antics of Electrons," by O. H. Caldwell, Editor of *Electronics*. In addition—there will be B-E-E-R and entertainment. Remember the date—or better still, send your check for $2.00 now to the treasurer, Peter P. Pinto, 250 West 57th Street, New York City.

KLAUSS OPERATES INDIA PLANT UNDER RECEIVER

Following the appointment of Paul Weick as receiver for the India Tire and Rubber Company, Mogadore, Ohio, on March 22, the receiver designed the recently resigned president, W. G. Klauss, as operating agent of the factory. F. A. Scott, chairman of the board, J. M. Aldefer, director and founder of the company, and S. W. Aldefer, secretary, were removed from office by the receiver. Mr. Klauss immediately stepped up tire production schedules to meet orders and on April 1 advised all India dealers that there was no foundation in the reports that the plant was to shut down but instead the plant was operating six days a week, 24 hours a day. Efforts to straighten out the financial situation of the company are in progress at this time.

Goodrich Indianapolis Branch

With May 15 set as the date for its completion, work on the new building for the Indianapolis, Ind., branch of the B. F. Goodrich Rubber Company, and the superservice center of Goodrich Silvertown, Inc., retail division of Goodrich, is being rushed. The new building is located at Delaware and North Streets in Indianapolis.

The new building, to cost approximately $50,000 will be one story high, of brick, concrete and steel and will be one of the largest and most complete service outlets of its type in the state. It will be on property 195 by 160 feet. It will give Goodrich a choice location on one of Indianapolis' busiest thoroughfares, already dotted with many of the outstanding automotive garages and service stores in the city.

Tire Inventory Survey

The Rubber Division, Department of Commerce, sent out recently forms to tire dealers throughout the United States in its semi-annual survey of tire and tube stocks on hand as of April 1.

BLIMPS WILL OPERATE AT WORLD EXPOSITION

Two Goodyear blimps, the Puritan and the Reliance, will operate an aeronautical sight-seeing service for world's fair visitors this summer, it was announced recently by Goodyear Tire & Rubber Co.

To house the blimps, Goodyear has let a contract to the Austin Co. of Cleveland to double the size of the company's hangar at the Pal-Waukee airport near Chicago.

This will be the base for the blimps but they will operate from a fiying field located within the world's fairgrounds.

The blimps are still in Florida. They will come north in April, be overhauled at Wingfoot Lake and continue on to Chicago, to arrive there about May 1. A pilot staff of eight and a ground crew of 20 will accompany them.

An engineering staff, trained in Akron, will have charge of the engineering, maintenance and inspection work on the ships. New dimensions of the Chicago dock will be 320 feet long by 70 feet high and 71 feet wide.

GOODRICH SUPPORTS ITS DEALERS, DECLARES TEW

"The relationship of the manufacturer to his dealers has never been more important to the success of both interests than it is today," declares J. D. Tew, president, The B. F. Goodrich Company, Akron, Ohio, in a statement to Goodrich tire dealers, recently issued.

"Present economic conditions necessitate close cooperation of all merchandising efforts," continues Mr. Tew. "The manufacturer must assume the responsibility of providing dealers with every sales aid to make possible business at a profit.

"The B. F. Goodrich Company enters upon its sixty-third year of business with full confidence in its nation-wide dealer organization. Our sales policies are shaped to extend every cooperation to dealers, assuring the advantage of meeting competition wherever found, vigorously but legitimately."

Footwear Survey Issued

As we go to press, the result of the survey of dealers' stocks of rubber footwear, conducted by the Rubber Division, Department of Commerce, as of March 1, 1932, has been announced. The survey shows that 15,952 dealers reported stocks of 4,278,106 pairs of all classes of rubber footwear, an average of 268.2 pairs per dealer, against 17,306 dealers reporting 5,036,574 pairs, or 291.0 pairs each on the corresponding date last year. A more detailed analysis will appear in our next issue.

Elected to Rubber Exchange

The Board of Governors, Rubber Exchange of New York, Inc., has elected the following to membership: Thomas G. Cook, 25 Broad street, New York City; Paul Abbott of Watson & White, 149 Broadway, New York; Alexander Cycleman of Irving Weis & Co., 2 Broadway, New York City.

OBITUARIES

John F. Queeny

John Francis Queeny, 74, Chairman of the Board of Monsanto Chemical Works, died of a complication of diseases on March 19 at his home in St. Louis after an illness of several months. Mr. Queeny was the founder of the company which bears his wife's maiden name. Under his direction Monsanto became one of the leading chemical firms in the country.

Mr. Queeny was born in Chicago, August 17, 1859, and has been active in the chemical and drug business all of his business career.

Mr. Queeny was Monsanto's president until May, 1928, when he resigned to become Chairman of the Board. His son, Edgar M. Queeny, succeeded him as president. He has been actively identified with inland waterways improvements and was a member of the Executive Committee of the Mississippi Valley Association. He was a member of many local organizations and active in civic developments.

Oscar Englebert

Oscar Englebert, General Manager of O. Englebert Fils & Cie, Belgium, who died recently, was born in Liege, Belgium, on May 3, 1866.

In 1892 he founded the company which bore his name and which he managed for more than 40 years.

The thorough knowledge of the rubber trade, the energy, foresight and unceasing personal work which he displayed during all his life, enabled him to work up the initially small plant to a very large firm whose products are sold nearly all over the world.

He had a charming and genial personality and his kindness towards his staff was proverbial in his country. He was for many years the Chairman of the Rubber Manufacturers' Association of Belgium and the Vice Chairman of the Car Manufacturers' Association.

He is survived by his son, Mr. Georges Englebert, who becomes the manager of the company, and by a daughter.

J. D. Anderson

Justus D. Anderson, formerly with the Fisk Rubber Company and the U. S. Rubber Company, died in his 62nd year on March 3 in Springfield, Mass. Mr. Anderson was born in Chatham, Mass., on September 10, 1870. His earliest connection with the rubber industry was in 1895 when he became secretary of the Hartford Rubber Works. He remained with U. S. Rubber Company when that company took over the Hartford works until 1914 at which time he had risen to general sales manager. Shortly afterwards he joined Fisk where he became vice-president in 1916. He left that company in 1927 to join Jackson-Babbitt, Inc., N. Y.

T. F. Ferry

Thomas F. Ferry, 61, former president and director of The Aetna Rubber Company, died on March 22 in Cleveland. At the time of his death Mr. Ferry was president of the Ferry Cap and Set Screw Company.

J. E. Johnson

Joseph E. Johnson, 66, president of the Johnson Rubber Company, a subsidiary of the Ohio Pail Company, Middlefield, Ohio, died March 13 after an emergency operation.

William C. State

William C. State, 62, an inventor who changed the history of the rubber industry, died in Akron on March 21 of complications following an illness of several months.

During his 32 years in the tire industry, all of which were with the Goodyear Tire & Rubber Company, Mr. State contributed many inventions and improvements to rubber manufacturing machinery, outstanding of which was the tire building machine equipped with mechanical stitching device which was patented in 1909.

Joining Goodyear in 1901, Mr. State immediately attracted the industry's attention

WILLIAM C. STATE

with the invention of a new welding process and a portable device for mounting carriage tires. He was soon made master mechanic, later head of the engineering department which post he held for 25 years, and for the last five years consulting engineer.

Practically all Goodyear manufacturing and storage plants at Akron, the Los Angeles plant of the company, and the Goodyear-Zeppelin airship dock at Akron were built under State's direction. The airship dock, largest building in the world without interior supports, is perhaps the greatest building achievement of Mr. State. He also participated in the design and building of Goodyear's plants and distributing branches throughout the world.

Mr. State was born April 7, 1871, in Springfield, Ohio, where he attended Wittenberg College. He is survived by his widow, Mrs. Osee State, a brother, E. J. State, and a sister, Mrs. E. Hodge.

E. W. Hopp

E. W. Hopp, 44, vice-president of the Ohio Rubber Company, Willoughby, Ohio, died suddenly at Jennings Hospital in Detroit on March 26. Mr. Hopp had been vice-president of the Ohio Rubber Company for the past six months, having previously been connected with the Osborn Manufacturing Company and the Safe Cabinet Company.

J. M. Smith

James M. Smith, 50, foreman of the plant 1 transportation department, Goodyear Tire and Rubber Company, died in Akron on March 24. Mr. Smith had been a Goodyear employe for 17 years, starting as a piece worker upon his arrival in Akron from Colorado in 1916.

James A. Swinehart

James A. Swinehart, 77, founder of the tire company which bore his name, died on April 4 at City Hospital in Akron after a short illness of a heart ailment.

He was the holder of more than 20 patents, of which the side-wire truck tire is perhaps the best known. Mr. Swinehart obtained this patent while he was engaged in supervising the construction of the factory of the old Valley Rubber Company, New Philadelphia, in 1879. Later he met Harvey S. Firestone in Chicago and the newly patented tire became the property of the nascent Firestone Tire and Rubber Company. Mr. Firestone owned one-half of the stock of this company and Mr. Swinehart and his associates, who had purchased a three-fifths interest in the patent for $200, controlled the other half of the stock. Mr. Swinehart was made vice-president of the embryo company at a salary of $100 a month.

From 1905 to 1910 the inventor was connected with the Swinehart Clincher Tire Company, later known as the Swinehart Tire and Rubber Company, Akron, Ohio. This company was organized to manufacture Mr. Swinehart's cushion tire. It went out of business in 1929.

In 1927 Mr. Swinehart became associated with the Gillette Rubber Company, Eau Claire, Wis., to help with development work.

He is survived by a son, B. C. Swinehart of the Hewitt Gutta Percha Rubber Corporation, Buffalo, and a daughter, Mrs. Edmud Burroughs of Akron, whose husband is president of the Akron Bar Association.

B. L. Stokes

Barclay L. Stokes, for many years connected with the Essex Rubber Co., Trenton, in an official capacity, died March 19 in Burlington County Hospital, Mount Holly, N. J., following an operation. He was in the 86th year of his age. Mr. Stokes was born in Medford, N. J. He leaves no immediate survivors. The deceased was affiliated with the Masonic fraternity for more than fifty years.

GASOLINE EXPECTED TO SHOW SALES DECLINE

The committee on refinery statistics and economics of the American Petroleum Institute estimates that demand for motor fuel in the first six months of this year will be 7.6 per cent less than in the first half of 1932. Domestic demand is expected to decline by 22,000,000 barrels, or 4.8 per cent, and exports by 6,750,000 barrels, or 31.4 per cent. The estimated large decrease in exports is said to reflect not so much a decline in foreign demand as a shift of sources supplying those markets.

The supply required to meet needs, after allowing for a reduction in gasoline stocks to economic levels, is placed at 182,960,000 barrels, or 13.9 per cent, below that in the first half of 1932. The required runs of crude oil to stills are estimated at 2,090,000 barrels a day for the six months, but from March 1, it is explained, they should not exceed 2,070,000 barrels daily. A reduction of 90,000 barrels a day from the rate of refinery operations in the week ended on Feb. 18 would be necessary to accomplish the objective.

U. S. RUBBER OFFERS TO REFUND 6% NOTES

Holders of United States Rubber Co. three-year 6% secured notes, due June 1, 1933, have been offered 30% face value in cash and the remainder in new three-year 6% secured notes in settlement for the issue in a letter from F. B. Davis, Jr., president.

Payment in cash of 10% of the principal amount of each note presented in acceptance of the plan between March 31 and May 1 is offered for prompt assent. The balance of 20% in cash will be paid on or before June 1 in the case of notes on which no advance payment has been made.

In addition, the company offers to pay at the time of presentation the full amount of the coupon due June 1 to notes presented under the plan before May 1.

The new notes would be secured by the pledge of the company's first and refunding mortgage 6% bonds, Series B, January 1, 1947, to a principal amount equal to not less than 250% of the principal amount of the new notes.

A total of $8,513,000 principal amount of the maturing notes are now outstanding. The original issue amounted to $15,000,000.

DUTCH MINISTER TALKS ON RUBBER RESTRICTIONS

J. De Graff, Minister for the Colonies of the Netherlands, stated in the second chamber of the Dutch Parliament at the Hague, on March 2, that introduction of a scheme for forced restrictions of rubber output necessitates caution, according to a London cable, quoting an Amsterdam correspondent of the *Financial Times*, received by The Rubber Exchange of New York, Inc. Previous efforts to bring the British and Dutch governments together on such a plan have proved unsuccessful.

The Dutch government, according to De Graff, could only consider a rubber restriction scheme in which Great Britain would cooperate. The Colonial Minister's statement was made in reply to a question by a deputy. He further stated that the Netherlands government would act prudently in view of previous experience in this connection.

GOODRICH ISSUES TWO NEW TABLOID PAPERS

The first issue of revived "The Goodrich Circle," a factory newspaper last published in 1921 for Akron employees of the B. F. Goodrich Company and its subsidiary, Miller Rubber Products Company, Inc., was distributed Monday, February 13.

For the first time in over 10 years, Goodrich will have a plant newspaper devoted to news of employees' activities. The paper will be printed monthly and is edited by the Public Relations Department.

The first issue of the Goodrich Silvertown News is also being distributed to the Goodrich retail organization.

Designed as a sales tool for its dealers, the publication is in tabloid form, contains a large number of news pictures and spot material about members of the organization, and discusses sales and advertising problems as they affect the manufacturer and retailer. Guy Blanchard is editor.

Financial News

MONSANTO

Report of Monsanto Chemical Works and subsidiaries for year ended December 31, 1932, shows net profit of $1,012,698 after depreciation, interest, federal taxes, etc., equivalent to $2.37 a share on 427,197 no-par shares of stock outstanding at close of year. This compares with $1,280,782 or $2.98 a share on 429,000 shares in 1931.

For quarter ended December 31, 1932, net profit was $276,656 after charges and taxes, equal to 64 cents a share on 427,197 shares comparing with $201,821 equal to 47 cents a share on 429,000 shares in preceding quarter and $245,338 or 57 cents a share on 429,000 shares in December quarter of previous year.

Current assets as of December 31, 1932, including $2,566,954 cash and marketable securities, amounted to $6,393,261 and current liabilities were $1,117,591 comparing with cash and marketable securities of $2,206,112, current assets of $5,895,505 and current liabilities of $940,254 at end of preceding year.

AETNA RUBBER

Aetna Rubber Co. reports for year ended December 31, 1932, net loss of $82,001 after depreciation, etc., comparing with net loss of $70,291 in 1931.

GENERAL CABLE

Net loss of the General Cable Corp. and subsidiaries for 1932, after interest, depreciation, losses attributed to decline in market prices of copper and other raw materials and other charges, was $5,023,840, against $5,271,551 loss in 1931. Current assets as of December 31, 1932, including $3,220,731 cash and marketable securities, amounted to $7,951,746 and current liabilities were $632,418, compared with cash and marketable securities of $4,140,905, current assets of $12,717,051 and current liabilities of $1,144,990 at end of preceding year.

N. J. ZINC

Report of New Jersey Zinc Co. for year ended December 31, 1932, shows net income of $2,013,120 after depreciation, depletion, taxes, etc., equivalent to $1.02 a share (par $25) on 1,963,264 shares of stock. This compares with $3,051,589 or $1.55 a share in 1931.

Net income for quarter ended December 31, 1932, was $417,790 after charges and taxes, equal to 21 cents a share, comparing with $516,330 or 26 cents a share in preceding quarter, and $546,751 or 28 cents a share in fourth quarter of preceding year.

GOODYEAR (Calif.)

Goodyear Tire & Rubber Co. of California, Inc., and wholly owned subsidiaries report for the year ended December 31, 1932, net loss of $200,514 after depreciation, interest and taxes. This compares with net profit of $25,529, equivalent to 32 cents a share (par $100) on 79,957 shares of 7 per cent preferred stock in 1931.

GARLOCK

Report of Garlock Packing Co. for year ended December 31, 1932, shows net profit of $75,221 after interest, amortization, federal taxes, etc., equivalent to 37 cents a share on 200,000 no-par shares of capital stock. This compares with $231,140 or $1.15 a share in 1931.

INTERCONTINENTAL RUBBER

1932 net loss of Intercontinental Rubber Co. and subsidiaries, after expenses, miscellaneous taxes, shut-down costs, interest, depreciation adjustments of rubber inventory to market and other charges, $471,992, compared with $351,931 loss in 1931.

MOHAWK RUBBER

Balance sheet of Mohawk Rubber Co. and subsidiary as of December 31, 1932, shows total assets of $2,660,901 comparing with $2,667,583 at end of 1931. Current assets amounted to $1,279,449 and current liabilities were $317,009 against $1,192,490 and $139,532, respectively, at close of preceding year. Capital surplus was $467,743 as compared with $473,054, and profit and loss deficit was $1,231,162 against $1,119,237 on December 31, 1931.

FIRESTONE

Firestone Tire & Rubber Co. declared a quarterly dividend of 10 cents on common, payable April 20 to stock of record March 24. Heretofore the common stock has been on $1 annual basis.

MASTER

Master Tire & Rubber Co. reported net loss of $95,565.50 in 1932 with net income of $184,425.75, net sales of $3,311,625.11 as against sales of $3,749,128 in 1931. The balance sheet shows current assets of $1,480,522.29, and current liabilities of $815,068.19.

PENNSYLVANIA

Pennsylvania Rubber Co. in its annual statement for the year ending December 31, 1932, reported gross profit on sales of $1,414,869.25. Net profit after deducting selling expense, general and administrative expenses, was $489,186.44. After allowing for depreciation, taxes, inventory write-down, interest and bad debts, a net of $30,044.85 was carried to surplus. Balance sheet showed current assets of $1,805,429.20 and current liabilities of $252,265.20.

Ask Shoe Dealer Cooperation

The Mishawaka Rubber & Woolen Manufacturing Co., Mishawaka, Ind., is one of the group of manufacturers of shoes who are urging shoe dealers to protect their credit standing by making a semi-annual stock inventory, analyzing and ageing accounts receivable, preparing a balance sheet and an operating statement for the past six months. By furnishing such statements to the manufacturers frank and constructive comments and consistent credit consideration can be made in each case.

New Rubber Goods

General Jumbo Tire

Hundreds of sharply-cut prisms of resilient rubber form the side-wall of the new General Streamline Jumbo tire, just perfected by General Tire & Rubber Company. The design of the inner section of the sidewall gives the effect of moire silk. The new tire has been strengthened structurally but embodies the same principles of construction that have featured this tire since its introduction a year ago. The tire is said to differ radically from all other types of conventional super-balloon or "doughnut" tires. Its shape is pyramidal, its almost straight side-walls tapering from a tread no wider than that of the ordinary balloon tire it replaces to a base, wider than any other part of the tire. Built like a cantilever bridge, the tire has maximum stability because of its broad base while the narrow tread makes steering and parking easy. The many sidewall prisms on the new tire slow down the reaction of air compression when the tire strikes bumps or depressions in the surface, snubbing the return shock and producing, in effect, "lazy rubber" riding ease.

Rubber Thumb for Cards

AN interesting use of rubber is made in the new mechanical bridge table recently introduced by the Hammond Clock Co., 2911 No. Western Ave., Chicago. According to *Machine Design* (Cleveland), to whom we are indebted for the accompanying illustration and description, the card picker mechanism of the bridge table employs a rubber thumb and a rubber roll operating as follows: It comprises essentially a sponge rubber picker thumb Y held in a metal clamp. Friction of this thumb on the topmost card causes the card to be carried up the inclined rails on to the track. Subsequently the rubber roller X travels up an inclined portion formed upon the inner track, thereby raising the picker thumb off the surface of the card. The conveying mechanism that continues the movement of the card from the position in which it is left by the picker, consists of an arm. A carrier bracket on the outer extremity of this arm contacts the edge of the card and pushes it along the track until it comes to the designated pocket and is deposited.

New Goodrich Tire Construction

A new automobile tire incorporating a construction change which is said to protect against blow-outs, is announced by the B. F. Goodrich Company, Akron, Ohio.

The major improvement is a so-called "Life Saver Golden Ply" made of a special compound which resists internal heat and friction, according to Goodrich engineers.

"This new tire, employing the latest type ply development, was engineered to prevent separation and then tested for hours at high speeds on the fastest automobile track in this country," S. B. Robertson, Goodrich vice-president declared.

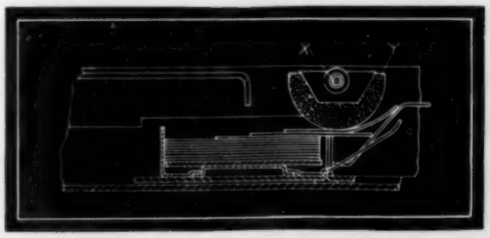
"It was found in these speed trials, conducted and witnessed by impartial drivers and observers, that tires containing the new

ply design at high speeds actually gave three times the blow-out protection to be had in standard tires without the safety ply."

Replacement Wringer Rolls

A line of rubber wringer rolls for replacement purposes is being marketed through hardware stores by Fretcher's, Inc., 211 Glasgow avenue, Akron, O. The rolls are supplied in long lengths which may easily be cut to the desired sizes. They are made of good quality rubber and are guaranteed

not to break loose from the shaft. The same company is making a "Slip-On" tub hose with an enlarger end for slipping on faucets.



Card picker employs sponge rubber thumb which moves card by friction

PERSONALS

HORACE B. TOBIN, president of the Woven Steel Hose & Rubber Co., Trenton, has been re-elected president of Mercer Hospital, Trenton.

L. R. LEAVER, sales manager of the mechanical department of the Thermoid Rubber Co., Trenton, has been on a business trip to the Western oil fields where the concern sells supplies. JAMES A. WHEATLEY, JR., sales manager of the automotive division, has returned from a trip to the Pacific Coast.

THOMAS H. WHITE was elected a director at the annual meeting of stockholders of Goodyear Tire & Rubber Co., to succeed J. Arthur House. Other directors were re-elected. Mr. White is president of Commonwealth Securities, Inc.

WALLACE C. HUTTON, secretary of the Seamless Rubber Co., New Haven, Conn., was unanimously elected president of the New Haven Chamber of Commerce at the annual banquet March 29. Mr. Hutton has been prominent in civic affairs for a number of years.

FREDERICK L. MCENANY, supervisor at the Fairfield, Conn., plant of E. I. du Pont de Nemours & Co., addressed the Black Rock Business Men's Association of Bridgeport, Conn., March 29, on "The Evolution of Rubber."

HERBERT I. SCOTT, secretary-treasurer of The Barr Rubber Products Co., Sandusky, Ohio, was the speaker before the Rotary Club recently at Hotel Rieger. Various steps and processes in the manufacture of rubber products were outlined.

S. W. CAYWOOD, vice-president of The International B. F. Goodrich Corporation, Goodrich export corporation, who has been on a lengthy tour of the Orient, left Manila, Philippine Islands, for New Zealand, Feb. 28. He plans to leave New Zealand about March 30 on the trip home and arrive in San Francisco, April 30, after stopping off in Honolulu five days. He is due in Akron about April 26.

Before he has completed his journey to and from the Orient, Mr. Caywood will have traveled approximately 30,000 miles. He has already visited Shanghai, Yokohama, Singapore, Batavia, Bombay and many other places in the Far East.

DR. HOWARD E. FRITZ, manager of the chemical sales division of The B. F. Goodrich Company, Akron, O., addressed the Society of Engineers of Eastern New York at their meeting in Troy, N. Y., on Wednesday, March 8. Dr. Fritz discussed "New Industrial Uses for Rubber," going into some of the most recent developments and applications of rubber, the uses of which are constantly being expanded.

Rubber in Automobiles

According to a recent compilation by Alfred Reeves of the National Automobile Chamber of Commerce, 83 per cent of the rubber used in this country is consumed in tires and other automotive products. He estimated that the motor industry used 589,000,000 pounds of crude rubber in 1932 and 165,000,000 pounds of cotton in the tires.

MARKETS

RUBBER—COTTON AND FABRICS—CHEMICALS

NEW YORK, APRIL 10, 1933

Crude Rubber

SINCE our last report there has been only a slight change in spot quotations on crude rubber, the average price for the last three months being 3 cents for each month. Since the beginning of this month, however, quotations have been over the 3c. mark with today's spot bid price on the outside market reaching 3 7/32s. Exchange prices have similarly risen from 3.00 on April 1 for May to 3.19 for the same position today. Some factory interest has been shown in present levels especially as the statistical position of rubber would indicate a continued upward trend in quotations. The consumption figures issued by the Rubber Division, Department of Commerce for 1932 were somewhat of a surprise in that they disclosed a consumption of 332,000 tons in the United States as against a figure of slightly over 313,000 tons issued by the Rubber Manufacturers' Association recently. Quotations in New York, London and Singapore as of April 10 follow:

Plantations—

Ribbed Smoked Sheets—			
Spot	—	@	.03 7/32
April	—	@	.03 7/32
Apr.-June	—	@	.03¼
First Latex, crepe spot	—	@	.03⅜
Amber Crepe, No. 2	—	@	.02⅞
Amber Crepe, No. 3	—	@	.02½
Amber Crepe, No. 4	—	@	.02⅜
Brown Crepe, Clean thin	—	@	.02⅞
Brown Crepe, rolled	—	@	.02⅞

Latex—

Liquid Latex, per gal.	.42	@	—

Paras—

Up-river, fine	—	@	.06
Up-river, coarse	Nominal		
Acre Bolivian, fine	—	@	.06¼
Caucho Ball, Upper	—	@	.03

Balata—

Block, Ciudad	—	@	.16

LONDON MARKET

Standard Smoked Sheets—Buyers—April 10			
April	—	@	2¼d
May	—	@	2 5/32d

SINGAPORE MARKET

Standard Smoked Sheets—Sellers—April 10			
April	—	@	1 31/32d
July-Sept.	—	@	1 11/16d

Reclaimed Rubber

Renewed interest in reclaims is becoming apparent as shown by recent inquiries from manufacturers of mechanicals and garden hose, insulated wire, tires, footwear and some auto accessories. This is customary at this time of the year and, as a result, shipments of reclaims for March and April are expected to show an increase. Quotations remain unchanged.

High Tensile

High Tensile Red	lb.	.04¾	@	.05
Super-Reclaim Black	lb.	.05	@	.05¼

Shoe

Washed	lb.	.05½	@	.05¾

Tube

No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.04½	@	.04¾

Tires

Black	lb.	.03¾	@	.04
Black, selected tires	lb.	.04	@	.04¼
Dark Gray		.05	@	.05¼
Light Gray	lb.	.05½	@	.06
White	lb.	.05½	@	.05¾
Truck, Heavy Gravity	lb.	.05	@	.05¼
Truck, Light Gravity	lb.	.05¼	@	.05½

Miscellaneous

Mechanical blends	lb.	.03	@	.03½

Scrap Rubber

The market for rubber scrap appears to be somewhat more active lately, undoubtedly due to the increasing interest being shown in reclaims. Collections are increasing, as usual at this time of the year, and prices remain unchanged as follows:

(Prices to Consumers)

Auto tire peelings	ton	13.50	@	15.00
Mixed auto	ton	6.50	@	7.00
Clean solid truck tires	ton	22.50	@	25.00
Boots and shoes	ton	15.00	@	16.00
Arctics, untrimmed	ton	10.00	@	12.50
Inner tubes, No. 1	lb.	.01⅞	@	.02
Inner tubes, No. 2	lb.	.01¼	@	.01⅝
Inner tubes, Red	lb.	.01⅝	@	.01½

Cotton

Upon the reopening of the cotton exchanges on March 16, the reported high spot prices during the bank holiday failed to materialize and after a short rise, the market levelled off to practically the quotations prior to the suspension of operations. Interest at this time is largely in the effect of the Farm Relief Bill which has been reported favorably by the Senate Agriculture committee but which is meeting opposition in the trade. Until this is settled sellers are staying out of the market. It is also believed that the administration in Washington is doing all in its power to raise commodity prices. Traders look, as a result of current developments, to rising prices for cotton. Quotations as of April 10 follow:

	April 10			March 3
	High	Low	Close	Close
May	6.58	6.51	6.53	6.25
July	6.75	6.68	6.69	6.40
Oct.	6.97	6.90	6.91	—

Tire Fabrics

(Prices Net at the Mill)

Peeler, carded, 23/4/3	lb.	.23¾	@	—
Peeler, carded, 23/5/3	lb.	.22¾	@	—
Peeler, carded, 13/3/3	lb.	.19¾	@	—
Peeler, carded, 15/3/3	lb.	.20¾	@	—
Egyptian, carded, 23/5/8	lb.	.35½	@	.36
Egyptian, combed, 23/5/3	lb.	.39½	@	.40
CHAFERS				
Carded, American, 8 oz.	lb.	.15½	@	.16
Carded, American, 10 oz.	lb.	.15½	@	.16
Carded, American, 12 oz.	lb.	.15½	@	.16
Carded, American, 14 oz.	lb.	.15½	@	.16
LENO BREAKER				
Carded, American, 8¼ oz.	lb.	.16	@	.19
Carded, American, 10¼ oz.	lb.	.18	@	.21
SQUARE WOVEN				
Carded, American, 17¼ oz. 23-11 ply	lb.	.22¾	@	—
Carded, American, 17¼ oz. 10-5 ply	lb.	.15½	@	—

Sheetings

40 inch, 2.50 yard	yd.	.05	@	.05½
40 inch, 2.85 yard	yd.	.04½	@	—
40 inch, 3.15 yard	yd.	.05	@	—
40 inch, 3.60 yard	yd.	.04¼	@	.04⅝
40 inch, 3.75 yard	yd.	.03⅞	@	.04
40 inch, 4.25 yard	yd.	.03⅝	@	—

Ducks

Enameling	lb.	.17½	@	.21
Belting and Hose	lb.	.18½	@	.19
Single filling	lb.	.06½	@	.06⅝
Double filling	lb.	.05½	@	.06

Closing Prices on Rubber Exchange of New York, Inc.

No. 1B Standard Contract of 10 Tons

FROM MARCH 10 TO APRIL 9, 1933

Date	Spot	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Sales
Mar. 10															
11															
12	(Exchange Closed Due to Bank Moratorium)														
13															
14															
15	3.06	3.05	3.10	3.15	3.19	3.24	3.28	3.33	3.37	3.40	3.44	3.48	3.53	——	124
16	3.18	3.15	3.20	3.25	3.29	3.34	3.38	3.42	3.47	3.51	3.55	3.59	3.64	——	148
17	3.10	3.07	3.11	3.15	3.20	3.25	3.30	3.36	3.40	3.43	3.47	3.50	3.55	——	92
18	3.09	3.03	3.08	3.13	3.17	3.22	3.27	3.33	3.37	3.41	3.45	3.50	3.55	——	22
19	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——
20	3.06	3.03	3.06	3.10	3.15	3.20	3.24	3.29	3.33	3.36	3.40	3.45	3.50	——	30
21	3.03	3.01	3.04	3.07	3.17	3.18	3.22	3.26	3.30	3.34	3.38	3.43	3.48	——	48
22	3.03	3.02	3.03	3.05	3.09	3.14	3.18	3.23	3.27	3.31	3.36	3.41	3.46	——	6
23	3.03	3.01	3.03	3.05	3.10	3.15	3.20	3.25	3.32	3.32	3.35	3.40	3.45	——	4
24	2.98	2.98	3.01	3.04	3.08	3.13	3.18	3.23	3.26	3.29	3.32	3.37	3.42	——	38
25	2.95	2.97	2.99	3.02	3.05	3.08	3.12	3.17	3.21	3.25	3.29	3.34	3.39	——	44
26	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——
27	2.95	2.92	2.95	2.99	3.03	3.07	3.11	3.15	3.19	3.23	3.27	3.30	3.35	——	10
28	2.98	2.97	3.00	3.03	3.06	3.10	3.14	3.18	3.22	3.25	3.29	3.33	3.38	——	27
29	2.95	2.90	2.93	2.97	3.02	3.08	3.13	3.18	3.22	3.25	3.28	3.33	3.38	——	41
30	2.96	2.87	2.90	3.00	3.04	3.08	3.13	3.18	3.22	3.26	3.30	3.34	3.39	——	16
31	2.97	——	2.95	3.03	3.07	3.11	3.15	3.20	3.24	3.28	3.32	3.36	3.41	——	22
Apr. 1	2.96	——	2.92	3.00	3.04	3.08	3.13	3.18	3.22	3.25	3.28	3.32	3.37	3.42	32
2	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——
3	2.94	——	2.92	3.00	3.05	3.10	3.13	3.17	3.21	3.24	3.28	3.33	3.38	3.43	7
4	2.94	——	2.94	2.98	3.02	3.07	3.11	3.15	3.19	3.23	3.27	3.32	3.36	3.40	29
5	2.97	——	2.94	2.98	3.02	3.06	3.10	3.15	3.19	3.23	3.27	3.31	3.35	3.39	82
6	3.00	——	2.98	3.02	3.06	3.11	3.14	3.18	3.22	3.26	3.29	3.34	3.38	3.42	70
7	3.06	——	3.02	3.06	3.10	3.15	3.20	3.25	3.28	3.31	3.35	3.39	3.43	3.48	77
8	3.10	——	3.06	3.10	3.14	3.18	3.23	3.28	3.32	3.35	3.39	3.44	3.47	3.51	33
9	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——

Rubber CHEMICAL Markets

NEW YORK, April 10, 1933.

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.67
Altax	lb.		
Captax	lb		
Cryiene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.43
Diphenylguanidine	lb.	.33 @	.34
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.42
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.46 @	.47
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.36 @	.37
Monex	lb.	3.25 @	--
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Thiocarbanilid, drums	lb.	.25 @	.27
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Litharge, domestic	lb.	.05¾@	—
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.36 @	.37
Ultramarine	lb.	.06 @	.30
Browns			
Sienna, Italian	lb.	.04 @	.08
Umber, Turkey	lb.	.04 @	.06
Greens			
Chrome, light	lb.	.23 @	.26
medium	lb.	.26 @	.28
dark	lb.	.28 @	.33
Chromium Oxide, bbl.	lb.	.23 @	.27
Reds			
Antimony			
crimson, 15/7	lb.	.40 @	—
sulfur, free	lb.	.52 @	.56
Indian English	lb.	.09 @	.10
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Whites			
Cryptone CB, No. 21	lb.	.06½@	.06¾
Cryptone, No. 19	lb.	.06½@	.06¾
Lithopone, Albalith	lb.	.04½@	.04¾
Lithopone, Azolith	lb.	.04½@	.04¾
Titanium oxide	lb.	.17 @	.19
Titanox B	lb.	.06 @	.06½
Titanox C	lb.	.06 @	.06½
XX Zinc Sulphide, bbls.	lb.	— @	.13
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05¾@	.06
ZZ (leaded)	lb.	.05½@	.05¾
Horsehead Lead Free Brand:			
Selected	lb.	.05¾@	.06
Special	lb.	.05¾@	.06
XX Red	lb.	.05¾@	.06
XX	lb.	.05¾@	.06
XX Green	lb.	.05¾@	.06
Leaded Brand, Standard	lb.	.05½@	.05¾
Sterling	lb.	.05½@	.05¾
Superior	lb.	.05½@	.05¾
Lehigh	lb.	.05¼@	.05½
U. S. P., bbls.	lb.	— @	.12¾
Kadox, black label	lb.	.09⅝@	.09⅞
Blue label	lb.	.08⅝@	.08⅞
Red label	lb.	.07¼@	.07½
St. Joe, black label	lb.	.05⅝@	.06
green label	lb.	.05⅝@	.06
red label	lb.	.05¾@	.06
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.05¾@	.06
Anaconda, selected lead free	lb.	.06¼@	.06½
Florence White seal, bbls.	lb.	— @	.10⅞
Green seal	lb.	.09⅝@	.09⅞
Red seal	lb.	.08⅝@	.08⅞
Yellows			
Chrome	lb.	.16 @	.16½
Ocher, dom. med.	lb.	.01½@	.02

BLACKS

Arrow "Aerfloted"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Arrow "Aerfloted" Specification, c.l. f.o.b. wks., bags	lb.	.03 @	—
Bone, powdered	lb.	.05½@	.12½
Carbon, compressed	lb.	.02¾@	.07
uncompressed	lb.	.02¾@	.07
"Certified," Cabot			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Spherons	lb.	.02¾@	—
"Disperso" f.o.b. La.	lb.	.028 @	.071
f.o.b. Texas	lb.	.02¾@	.07
Drop, bbls.	lb.	.05½@	.14
"Excello," compressed	lb.	.03 @	—
"Fumonex"	lb.	.02½@	.06
"Gastex"	lb.	.02½@	.06
Lampblack	lb.	.06 @	.08
"Micronex"			
c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Supreme"	lb.	.02¾@	—
Thermatomic—"P 33"	lb.	—	—
"Thermax"	lb.	—	—
United, "Dixie" and "Kosmos"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Velvetex"	lb.	.02 @	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	13.40 @	14.00
Barium carbonate (98-100%)	lb.	.05 @	—
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	33.00 @	—
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	60.00 @	75.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	60.00 @	70.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	6.00 @	7.00
Aerfloted, Suprex	ton	6.50 @	8.00
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Par	ton		
Tensulite		15.00 @	—
Cotton Flock	lb.	.08 @	.16
Glues, extra white	lb.	.15 @	.22
medium white	lb.	.12 @	.14
Kalite No. 1	ton	30.00 @	55.00
Kalite No. 3	ton	40.00 @	65.00
Magnesia, carbonate	lb.	.05¾@	.06
Mica	lb.	.04 @	—
Rottonstone (powdered)	ton	23.50 @	28.00
Soapstone, powdered	ton	16.00 @	18.00
Starch, powdered	cwt.	2.34 @	—
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.10
English cliffstone	cwt.	1.50 @	1.70
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.10½@	—
Zinc Stearate	lb.	.20½@	—

MINERAL RUBBER

Genasco (factory	ton	40.00 @	42.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Parmr, solid	ton	28.00 @	28.00
Pioneer, MR, sclid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	.20 @	.20½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.08 @	.12
Stearic, double pressed	lb.	.08 @	.12
Alkalies			
Caustic Soda, 76%	cwt.	2.00 @	2.50
Soda Ash, 58% C.L.	cwt.	1.15 @	1.35
Oils			
Corn, refined, bbls.	lb.	.05½@	.06
Cottonseed, crude	lb.	.03½@	.04
Degras (c.l. 100 bbls.)	lb.	.02¾@	—
Less c.l. (10-25 bbls.)	lb.	.03 @	—
Lots less than 10 bbls.	lb.	.03¼@	—
Fluxrite	lb.	.05½@	.06¼
Palm Lagos	lb.	.03¼@	.03½
Niger	lb.	.02¾@	.03
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08¼
Pigmentaroil	gal.	.13 @	.18
Pine, steam distilled	gal.	.59 @	.61
destructively distilled	gal.	.56 @	.58
Witco Palm Oil	lb.	.07¼@	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.05 @	.06
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt.	bbl.	6.00 @	—
Rosin, grade K, 280 lb.	bbl.	4.30 @	—
Pigmentar	gal.	.13 @	.18
Tar Retort, 50 gal.	bbl.	9.50 @	10.00
Solvents			
Acetone, pure	lb.	.08 @	.09½
Alcohol, denatured, No. 1 bbls.	gal.	.30½@	.41½
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dipentene	gal.	.31 @	.41
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10¼
Ethylene dichloride	lb.	.06½@	.07½
Gasoline, steel bbls.	gal	.16 @	
Naphtha, solvent	gal.	.26 @	.31
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	
Turpentine, spirits	gal.	.47 @	.51
wood	gal.	.42 @	—
destructively distilled	gal.	.37 @	—
Waxes			
Beeswax, white	lb.	.30 @	.32
Carnauba	lb.	.25 @	.26
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.05 @	.06
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02 @	—
White crude scale 124/126	lb.	.02 @	—
Refined, 125/127	lb.	.02¾@	—
Refined, 128/130	lb.	.03¼@	—
Refined, 135/137	lb.	.04 @	—
Refined, 138/140	lb.	.06¾@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Flectol-A	lb.	— @	—
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.60

SPECIALTIES

Aromatics- Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.58 @	.60

SUBSTITUTES

Black	lb.	.06 @	.08
White	lb.	.08 @	.12
Brown	lb.	.07 @	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.04 @	—
Sulfur flour,			
Ref'n'd. 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb.		
Vandex	lb.		

Crude Rubber
Latex and Guayule
Reclaimed Rubber
Tires and Tubes

STATISTICS OF THE INDUSTRY

Rim Production
Automobiles
Gasoline
Cotton Prices

U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,978	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1931	497,138	72,918,949	6.54	25,595	4,255,472	7.42	471,543
1932	409,584	31,936,459	3.47	20,929	2,015,612	4.30	388,655
1931:							
Apr.	44,536	7,712,941	7.73	2,607	528,947	9.06	41,929
May	35,526	5,886,638	7.40	2,501	418,301	7.47	33,025
June	46,233	6,918,900	6.68	2,749	440,604	7.15	43,484
July	43,469	6,023,748	6.19	1,435	223,587	6.96	42,034
Aug.	38,669	5,138,404	5.93	2,324	345,953	6.65	36,345
Sept.	38,494	4,970,324	5.76	1,362	187,431	6.14	37,132
Oct.	41,131	4,803,582	5.21	1,527	203,574	5.95	39,604
Nov.	43,345	4,742,218	4.72	1,403	198,284	6.31	43,345
Dec.	53,536	5,610,120	4.68	2,462	326,382	5.91	51,070
1932:							
Jan.	33,221	3,387,505	4.55	1,524	185,466	5.43	31,697
Feb.	27,959	2,690,250	4.29	1,915	222,584	5.19	26,044
Mar.	45,197	4,251,801	4.19	2,227	240,128	4.84	42,970
April	37,903	3,181,343	3.74	2,128	196,934	4.53	35,775
May	34,182	2,798,914	3.71	1,505	144,561	4.30	32,677
June	40,808	2,647,085	2.89	1,981	134,336	3.02	39,136
July	32,306	2,102,915	2.91	2,030	179,699	3.95	30,276
August	33,449	2,027,045	2.71	1,339	128,952	4.29	32,110
Oct.	35,096	2,436,522	3.10	1,059	98,022	4.13	34,037
Nov.	28,908	2,263,469	3.48	1,745	158,618	4.06	27,163
Dec.	31,384	2,360,061	3.34	770	66,165	3.98	30,614
1933							
Jan.	29,822	2,213,828	3.03	1,403	109,916	3.49	28,419
Feb.	22,603	1,554,086	3.12	1,244	102,129	3.73	21,359

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule: Tons	Guayule: Dollars	Balata: Tons	Balata: Dollars	Jelutong: Tons	Jelutong: Dollars	Liquid Latex (1): Tons	Liquid Latex (1): Dollars
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	884,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	845,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	847,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1931	—	—	1,209	411,692	5,777	1,019,010	4,650	884,355
1932	—	—	708	147,403	4,607	616,596	5,085	601,999
1932:								
Apr.	—	—	46	10,909	317	44,165	551	46,397
May	—	—	42	9,863	566	68,028	141	27,449
June	—	—	38	9,483	330	47,077	309	28,800
July	—	—	26	7,934	372	52,116	218	37,327
Aug.	—	—	36	8,885	367	46,926	540	59,178
Sept.	—	—	11	2,261	216	27,265	297	46,380
Oct.	—	—	84	17,451	349	48,816	711	69,053
Nov.	—	—	134	15,982	163	20,296	526	70,785
Dec.	—	—	22	5,209	276	36,298	632	79,250
1933								
Jan.	—	—	33	7,815	357	40,586	841	100,900
Feb.	—	—	12	2,923	391	52,171	367	46,037

(1) Latex import figures not available before 1924.

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1926	1927	1928	1929	1930	1931	1932	1933
Jan.	32,196	31,518	34,403	43,002	36,194	28,557	27,962	21,661
Feb.	31,136	30,137	33,702	41,594	33,302	28,797	30,011	20,462
Mar.	32,936	36,141	35,688	44,730	35,540	32,788	27,828	—
Apr.	32,696	35,871	32,772	47,521	39,686	33,321	25,953	—
May	29,364	34,592	37,333	49,233	39,386	37,817	29,197	—
June	28,598	33,801	37,676	43,227	34,195	37,916	39,116	—
July	27,577	29,219	37,407	41,526	29,508	31,937	28,272	—
Aug.	34,533	33,460	42,927	38,274	30,850	27,586	22,372	—
Sept.	32,904	27,214	39,882	34,707	25,515	23,638	22,491	—
Oct.	29,936	26,790	40,857	34,800	27,516	22,277	21,018	—
Nov.	28,080	26,792	37,461	27,659	23,691	22,943	21,910	—
Dec.	26,293	25,492	31,232	23,531	21,687	21,409	16,990	—
Totals	366,149	371,027	441,340	469,804	375,980	348,986	313,122	—

Figures on Quarterly Basis

Quarter	1925	1926	1927	1928	1929	1930	1931	1932
Jan./Mar.	95,263	94,301	99,216	103,558	128,565	101,610	89,652	85,309
Apr./June	104,099	87,109	103,242	103,500	139,292	112,229	107,765	92,641
July/Sept.	99,493	93,793	89,210	117,573	113,746	85,261	83,632	72,523
Oct./Dec.	85,789	83,212	80,860	117,597	84,872	72,920	65,645	64,143
Totals	384,644	358,415	372,528	442,227	466,475	371,120	346,684	314,620

Note—The Rubber Association estimates its monthly rubber consumption figues to be 80 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

Year	Production	Consumption: Tons	Consumption: % to Crude	Stocks*	Year	Production	Consumption: Tons	Consumption: % to Crude	Stocks*
1922	57,834	54,458	19 3	.....	1927	189,144	178,471	47.6	24,960
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1925	132,930	137,105	35.6	13,203	1930	157,967	153,497	40.8	22,000
1926	180,582	164,500	45.9	23,213	1931	133,351	124,126	33.9	19,257
1932:									
Jan.	8,753	8,440	30.2	18,712	July	5,417	5,131	18.1	16,333
Feb.	8,731	8,332	27.7	18,659	Aug.	3,264	4,382	18.6	14,629
Mar.	8,613	7,420	26.7	19,721	Sept.	5,308	5,235	23.2	14,068
Apr.	5,561	5,555	21.6	21,525	Oct.	6,605	5,494	26.1	13,911
May	5,024	6,070	20.8	18,889	Nov.	6,542	5,234	23.9	14,047
June	5,923	7,031	18.0	16,870	Dec.	5,626	3,968	23.4	15,202
1933:									
Jan.	5,245	4,506	20.8	15,117	July	.....	.....	—	—
Feb.	4,530	4,087	20.0	15,403	Aug.	.....	.....	—	—
Mar.	.....	.....	.....	.....	Sept.	.....	.....	—	—
Apr.	.....	.....	.....	.....	Oct.	.....	.....	—	—
May	.....	.....	.....	.....	Nov.	.....	.....	—	—
June	.....	.....	.....	.....	Dec.	.....	.....	—	—

* Stocks on hand at the end of month or year.
(Rubber Manufacturers' Association figures raised to 100%)

U. S. Consumption of Gasoline

(In Thousands of Barrels of 42 Gallons)

	1931	1932	1933		1931	1932	1933
January	26,844	26,063	26,510	July	39,459	31,317	—
February	26,133	25,344	23,312	August	39,459	35,207	—
March	31,037	29,451	.....	September	36,670	33,645	—
April	33,400	30,252	.....	October	35,051	32,255	—
May	35,716	31,574	.....	November	30,640	30,294	—
June	38,375	38,766	.....	December	30,529	27,191	—

Daily Spot Closing Prices of Ribbed Smoked Sheet

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1931																																
January	—	8⅝	8⅝	—	8½	8⅝	8⅝	8⅝	8⅝	8⅝	—	8⅝	8⅝	8⅝	8½	—	—	—	8¾	8¼	8¾	—	8¼	8¼	8¼	8¼	8¼	8¼	8⅛	8	—	8⅜
February	—	7⅞	7⅞	7⅞	7⅞	7⅝	7⅝	—	7⅝	8	—	—	7⅝	7⅝	—	—	7⅝	7⅝	7⅞	7½	7⅞	—	—	7⅞	7⅞	7⅝	7⅞	7⅞	—	—	—	7¾
March	—	7⅝	8	8⅜	8¼	8¼	8¼	—	7⅞	b	8	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7¾	7¾	7¾	—	7⅞	7¾	7¼	7	7	—	7¼	7	7¾
April	6⅝	6⅛	—	—	—	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6½	6½	6⅛	6⅛	6	6⅛	6	6	6	—	6	6	6	6	—	6½
May	6	—	—	—	6¼	6¼	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6½	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6½	6¼	6¼	6¼	—	6⅜
June	6⅝	6⅜	6⅜	6⅜	6½	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	—	6⅜	6⅜	6⅜	6¼	6¼	6⅜	7	6⅜	6⅜	6⅝	—	6⅝
July	6⅝	6¾	6¾	6¾	—	6¾	6½	6½	6½	6½	6½	6½	6½	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6¼	6¼	6¼	6¼	6¼	6	5⅞	5⅝	—	6⅜
August	6⅝	—	6¾	6¾	—	6¾	6½	—	6½	—	6½	6½	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	5¾	5¾	6⅜	—	6¼	6¼	6¼	6¼	6¼	6¼	5⅝	5⅝	—	6⅜
September	6⅛	6⅛	6⅛	6⅛	—	6¾	—	6¼	6¼	6¼	6¼	6⅜	6⅜	6⅜	6⅜	6⅛	6⅛	6⅛	6⅛	—	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛
October	4¾	4¾	4¾	4¾	—	4¾	4¾	4¾	5	5	5	5	4⅝	5	5	5	5	5	5	5	5	5	5	5	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾
November	4½	4¾	4¾	4½	—	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4½	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	—	4½	4½	4¾	4¾	—	4¾
December	4⅝	4¾	4¾	4½	—	4¾	4¾	4¼	4⅝	4⅝	4⅝	4⅝	—	4⅝	4⅝	—	4⅝	4⅝	4⅝	—	4⅝	4⅝	—	4⅝	—	—	—	5	5	5	—	4⅝
1932																																
January	—	—	—	4½	4½	4⅝	4⅝	4⅝	4⅝	—	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4¼	4⅝	4⅝	4¼	4⅝	—	4½
February	4⅝	4⅝	4½	4½	4½	4½	—	4⅝	4¼	4¼	4¼	—	—	4¼	4¼	4¼	4¼	4¼	7½	7½	7½	7½	7½	7½	8¼	7⅝	7⅝	7⅝	3¾	3¾	—	4
March	8½	8½	8½	8½	8½	—	8⅝	8½	8½	8⅝	8⅝	3⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	—	3½	3¼	8¼	3¼	8¼
April	3	3	3	3	3	3	2⅞	3	3	—	4	3⅛	3	3	3	3	3	3	3½	3	3	3	3	3	3	3	3	3	3	3	—	3
May	—	8	8¼	8¼	8¼	4	4⅝	—	4	8¼	8¼	2¾	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	—	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	—	2⅝	2⅝
June	2⅜	2⅜	2⅜	2⅜	—	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	—	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	—	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	2⅜	—	2⅜
July	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	—	2⅝
August	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	—	3⅛
September	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4	4	—	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	—	3⅞
October	3⅝	3⅝	3⅝	3⅝	3⅝	3⅝	3½	—	3½	3½	3½	3⅝	3⅝	3⅝	3⅝	3⅝	3⅝	3⅝	3⅝	3½	3½	3½	3½	3½	3⅝	3⅝	3⅝	3⅝	3⅝	3⅝	—	3½
November	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	—	3⅛
December	3⅜	3⅜	3⅜	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1933																																
January	—	—	3¼	3⅛	3⅛	3¼	2⅛	—	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	2⅛	2⅛	2⅛	2⅛	3
February	2⅛	2⅛	2⅛	2⅛	2⅛	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2⅝	2⅝	2⅝	2⅝	2⅝	3
March	2⅛	3	3	3	—	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
April	2⅝	—	2⅝	2⅝	2⅝	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1929

Year	Cents	Year	Cents	Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15	1922	17.50	1926	48.50
1911	141.30	1915	65.85	1919	48.70	1923	29.45	1927	37.72
1912	121.60	1916	72.50	1920	36.30	1924	26.20	1928	22.48
1913	82.04	1917	72.23	1921	16.36	1925	72.46	1929	20.55

Average Monthly Price per Pound Since 1927

Month	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents	1932 Cents	1933 Cents
Jan.	38.75	40.25	20.14	15.24	8.34	4.38	3.08
Feb.	38.25	32.75	23.97	15.85	7.70	4.03	2.95
Mar.	41.04	26.82	24.55	15.34	7.71	3.35	3.01
Apr.	40.86	18.97	21.18	14.93	6.43	3.02	——
May	40.76	18.99	21.46	14.24	6.49	3.09	——
June	37.25	19.59	20.64	12.45	6.35	2.66	——
July	34.87	19.40	21.30	11.24	6.37	2.89	——
Aug.	35.12	19.46	20.59	9.96	5.38	3.63	——
Sept.	33.67	18.47	20.37	8.28	5.08	3.84	——
Oct.	34.32	18.83	19.67	8.20	4.87	3.65	——
Nov.	37.58	18.26	16.62	9.01	4.65	3.44	——
Dec.	40.63	17.97	16.12	9.05	4.64	3.24	——
Average for Year	37.72	22.48	20.55	11.98	6.17	3.49	——

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Jan.	Feb.	Mar.	Apr.	Day	Jan.	Feb.	Mar.	Apr.
1	—	2 1/16	2 1/16	2 1/16	17	2 1/4	2 1/16	2 3/32	—
2	—	2 1/16	2 1/16	—	18	2 1/16	2 1/16	2 1/8	—
3	2 1/32	2 1/16	2 1/32	2 1/32	19	2 1/32	—	—	—
4	2 1/32	2 1/8	—*	2 1/16	20	2 1/16	2 1/32	2 1/32	—
5	2 1/32	—	—	2 1/16	21	2 1/8	2 1/32	2 1/8	—
6	2 1/32	2 1/8	2 1/32	2 1/32	22	—	—	2 1/8	—
7	2 1/32	2 1/8	2 1/32	2 1/8	23	2 1/32	2 1/32	2 1/32	—
8	—	2 1/32	2 1/32	2 1/32	24	2 1/16	2 1/16	2 1/32	—
9	2 1/32	2 1/8	2 1/32	—	25	2 1/16	2 1/16	2 1/32	—
10	2 1/16	2 1/32	2 1/8	—	26	2 1/32	—	—	—
11	2 1/32	2 1/8	2 1/8	—	27	2 1/8	2 1/32	2 1/32	—
12	2 1/32	—	—	—	28	2 1/8	2 1/32	2 1/32	—
13	2 1/16	—	2 1/8	—	29	—	—	2 1/32	—
14	2 1/16	2 1/32	2 1/32	—	30	2 1/32	—	2 1/32	—
15	—	2 1/32	2 1/32	—	31	2 1/16	—	2 1/8	—
16	2 1/4	2 1/32	2 1/32	—					

Average Monthly Price Per Pound

Month	1930 Pence	1931 Pence	1932 Pence	1933 Pence	Month	1930 Pence	1931 Pence	1932 Pence	1933 Pence
Jan.	7.471	4.160	3.052	2.264	Aug.	4.880	2.385	2.654	——
Feb.	7.948	3.823	2.760	2.093	Sept.	4.075	2.524	2.485	——
Mar.	7.595	3.822	2.047	2.099	Oct.	4.023	2.898	2.425	——
Apr.	7.391	3.082	1.876	——	Nov.	4.440	2.890	2.518	——
May	6.926	3.035	1.825	——	Dec.	4.516	3.115	2.444	——
June	6.195	3.082	1.750	——	Average for Year	5.926	3.155	2.434	——
July	5.648	3.048	1.875	——					

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Feb.	Mar.	Apr.	Day of Month	Feb.	Mar.	Apr	Day of Month	Feb.	Mar.	Apr.
1	5.90	6.15	6.40	11	6.10	*	——	21	6.10	6.25	——
2	5.90	6.10	——	12	——	——	——	22	——	6.35	——
3	6.00	6.35	6.40	13	——	*	——	23	6.05	6.45	——
4	5.95	*	6.45	14	6.00	*	——	24	6.15	6.50	——
5	——	——	6.50	15	6.05	*	——	25	5.95	6.45	——
6	6.00	*	6.60	16	6.05	6.85	——	26	——	——	——
7	6.05	*	6.55	17	6.15	6.55	——	27	6.05	6.25	——
8	6.05	*	6.55	18	6.15	6.55	——	28	6.05	6.40	——
9	6.15	*	——	19	——	——	——	29	——	6.30	——
10	6.15	——	——	20	6.15	6.55	——	30	——	6.50	——
								31	——	6.30	——

Average Monthly Price Per Pound

Month	1930 Cents	1931 Cents	1932 Cents	1933 Cents	Month	1930 Cents	1931 Cents	1932 Cents	1933 Cents
Jan.	17.21	10.27	6.65	6.23	Aug.	12.03	7.21	7.43	——
Feb.	16.62	10.96	6.80	6.08	Sept.	10.85	6.52	6.30	——
Mar.	15.13	10.90	6.86	6.39	Oct.	10.63	6.32	6.30	——
Apr.	16.39	10.19	6.16	——	Nov.	10.96	6.44	6.22	——
May	16.43	9.38	5.72	——	Dec.	10.92	6.24	6.00	——
June	14.48	9.05	5.22	——	Average for Year	13.57	8.56	6.41	——
July	13.10	9.28	5.87	——					

*Exchanges closed due to Bank Moratorium.

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND 1931	1932	1933	AFLOAT 1931	1932	1933	ON HAND AND AFLOAT 1931	1932	1933
Jan.	209,487	322,860	396,376	56,187	42,234	32,539	265,674	365,094	428,915
Feb.	212,883	322,711	393,640	63,680	51,728	32,898	276,513	373,845	426,538
Mar	217,804	334,566	.....	63,133	44,190	.....	280,937	378,756	.....
Apr.	228,382	343,099	.....	56,700	40,387	.....	285,082	383,486	.....
May	220,799	346,231	.....	73,564	50,453	.....	294,363	396,684	.....
June	225,536	345,702	.....	69,421	43,079	.....	294,957	388,781	.....
July	234,822	345,927	.....	66,873	37,894	.....	301,695	383,821	.....
Aug.	240,816	357,342	.....	61,469	41,282	.....	302,285	398,624	.....
Sept.	254,324	365,789	.....	62,420	46,188	.....	316,744	411,977	.....
Oct.	273,456	373,823	.....	68,427	40,176	.....	341,883	413,999	.....
Nov.	292,493	377,996	.....	77,443	40,876	.....	369,936	418,875	.....
Dec.	322,826	388,229	.....	53,940	38,360	.....	376,766	426,589	.....

(Rubber Manufacturers' Association figures raised to 100%)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1931	1932	1933	At end of	1931	1932	1933
Jan.	81,093	67,166	36,481	July	81,317	48,842	.....
Feb.	82,265	65,942	37,182	Aug.	81,560	47,079	.....
Mar.	84,786	64,280	.....	Sept.	79,692	44,942	.....
Apr.	86,982	61,848	.....	Oct.	76,778	42,327	.....
May	86,726	56,089	.....	Nov.	73,911	40,606	.....
June	83,071	51,009	.....	Dec.	69,470	37,407	.....

At End of Recent Weeks

1932	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
September	46,982	45,325	46,176	44,986	
October	44,972	44,503	43,729	43,173	42,614
November	42,114	41,528	40,952	41,025	
December	40,267	39,381	38,388	37,862	37,741
1933					
January	37,410	37,361	37,615	36,852	
March	38,303	38,522	39,400	40,481	
April	40,845				

Stocks in Liverpool

1932				
June	60,119	59,551	58,601	58,441	
July	58,569	58,335	57,622	57,618	57,366
August	58,019	57,762	57,542	57,448	
September	58,080	57,965	58,028	58,004	
October	58,261	58,209	57,831	57,568	57,702
November	57,311	57,329	57,021	56,004	
December	55,774	55,311	54,841	54,907	55,056
1933					
January	57,711	52,950	53,183	52,415	
February	52,232	52,434	52,799	52,955	
March	53,850	53,531	53,716	53,692	
April	53,989				

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1930	1931	1932	1933	End of	1930	1931	1932	1933
Jan.	39,727	48,802	48,850	22,525	July	45,459	51,203	17,017	.....
Feb.	44,371	49,283	46,954	21,530	Aug.	48,132	48,971	20,649	.....
Mar.	45,657	49,590	46,591	.....	Sept.	44,015	47,025	20,415	.....
Apr.	48,473	45,868	39,663	.....	Oct.	39,930	52,132	23,158	.....
May	44,715	44,278	38,690	.....	Nov.	41,674	46,497	25,419	.....
June	42,451	47,517	19,770	.....	Dec.	45,963	45,795	25,341	.....

STOCKS IN OTHER CENTRES

End of 1932:	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
June	40,184	20,240	3,274	3,727	5,885
July	38,681	21,190	2,996	3,781	5,982
Aug.	33,539	21,250	2,625	3,347	5,829
Sept.	36,346	21,040	2,246	2,634	5,823
Oct.	38,125	19,020	2,208	3,219	6,012
Nov.	36,363	21,860	2,229	3,565	5,530
Dec.	40,222	20,430	2,170	3,844	5,552
1933:					
Jan.	38,844	24,000	2,143		5,676
Feb.	37,323	24,000	2,033		

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1928	24,247,282	81.6
1924	21,863,311	19.7	1929	24,141,502	80.3
1925	26,001,664	66.8	1930	17,364,096	80.1
1926	24,199,524	78.8	1931	11,253,800	76.7
1927	19,700,003	79.1	1932	6,004,252	78.7
1932:			1933:		
July	338,725	82.2	January	727,308	79.1
August	221,913	53.8	February	726,172	—
September	197,099	64.5			
October	237,498	77.7			
November	454,947	77.5			
December	558,674	80.0			

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1925	1926	1927	1928	1929	1930	1931	1932
Production	60,845	61,237	64,439	77,944	68,726	50,965	48,739	40,085
Shipments	59,262	59,002	64,059	74,296	69,395	53,638	48,151	40,260
Inventory[2]	8,142	10,456	10,264	13,624	11,838	9,003	7,775	7,644

Figures for Recent Months

	PRODUCTION 1931	1932	1933	SHIPMENTS 1931	1932	1933	INVENTORY 1931	1932	1933
Jan.	3,675	3,462	2,258	3,744	3,253	2,597	8,957	7,912	7,237
Feb.	3,985	3,871	.....	3,402	2,553	.....	9,536	9,172	.....
Mar.	4,663	3,671	.....	4,122	2,954	.....	10,014	9,878	.....
Apr.	4,944	3,517	.....	4,932	3,698	.....	10,031	9,846	.....
May	5,679	3,820	.....	5,415	4,258	.....	10,312	9,379	.....
June	5,672	5,643	.....	5,572	10,065	.....	10,447	4,999	.....
July	4,926	3,617	.....	5,462	2,404	.....	9,919	6,203	.....
Aug.	3,966	3,689	.....	4,960	2,655	.....	8,896	6,659	.....
Sept.	3,172	2,539	.....	3,932	3,082	.....	8,158	6,096	.....
Oct.	2,974	2,569	.....	2,852	1,799	.....	8,300	6,876	.....
Nov.	2,500	2,304	.....	2,887	1,711	.....	7,919	7,454	.....
Dec.	2,643	1,983	.....	2,781	1,819	.....	7,775	7,644	.....

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1925	1926	1927	1928	1929	1930	1931	1932
Production	82,614	76,618	70,823	80,180	68,829	52,420	48,333	36,801
Shipments	81,004	71,591	72,896	77,127	70,592	54,938	50,021	37,935
Inventory[2]	11,313	16,200	13,692	16,117	12,807	9,999	7,922	6,749

Figures for Recent Months

	PRODUCTION 1931	1932	1933	SHIPMENTS 1931	1932	1933	INVENTORY 1931	1932	1933
Jan.	3,623	3,308	2,093	4,062	3,529	2,535	9,439	7,719	6,197
Feb.	3,916	3,281	.....	3,400	2,728	.....	9,921	8,760	.....
Mar.	4,450	3,502	.....	3,789	2,686	.....	10,475	9,448	.....
Apr.	4,617	3,225	.....	4,636	3,385	.....	10,413	9,441	.....
May	5,413	3,409	.....	5,281	3,867	.....	10,549	8,913	.....
June	5,358	5,279	.....	5,397	9,019	.....	10,504	5,174	.....
July	4,955	2,937	.....	5,831	2,160	.....	9,589	5,975	.....
Aug.	4,435	2,748	.....	5,301	2,503	.....	8,774	6,127	.....
Sept.	3,449	2,601	.....	4,150	3,098	.....	8,095	5,753	.....
Oct.	3,077	2,187	.....	2,813	1,658	.....	8,321	6,214	.....
Nov.	2,443	2,005	.....	2,594	1,578	.....	8,119	6,662	.....
Dec.	2,597	1,779	.....	2,767	1,724	.....	7,922	6,749	.....

(1) **Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.**

(2) **Held by manufacturers at end of period indicated.**

Automobile Production

	United States Total	Passenger Cars	Trucks	Canada Total	Passenger Cars	Trucks	Grand Total
1926	4,298,799	3,808,753	490,046	205,002	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,850	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931	2,389,730	1,973,090	416,640	82,621	63,477	19,144	2,472,351
1932							
Jan.	119,344	98,803	20,541	3,731	3,112	619	123,075
Feb.	117,418	94,110	23,308	5,477	4,494	983	122,895
Mar.	118,959	99,399	19,560	8,318	6,604	1,714	127,277
Apr.	148,326	120,937	27,389	6,810	5,660	1,150	155,136
May	184,295	157,756	26,539	8,221	7,269	952	193,370
June	183,106	160,338	22,768	7,112	6,308	804	190,204
July	109,143	94,705	14,438	7,472	6,773	699	116,611
Aug.	90,325	75,907	14,418	4,067	3,166	901	94,391
Sept.	84,150	64,748	19,402	2,342	1,741	601	86,483
Oct.	48,702	35,107	13,595	2,923	2,361	562	51,857
Nov.	59,557	47,532	12,025	2,204	1,669	535	61,760
Dec.	107,353	86,149	21,204	2,139	1,561	578	109,542
Total	1,370,678	1,135,493	235,187	60,816	50,718	10,098	1,431,494
1933							
Jan.	130,114	108,397	21,717	3,358	2,921	437	133,472
Feb.	106,814	91,942	15,322	3,298	3,025	273	110,112

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[6]						
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,415
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,062	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	514,487
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,976	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1931	519,740	125,506	394,234	61,769	8,470	10,451	6,247	4,218	75,952	87,747	116,009	11,696	12,121	3,292	792,203
1932	478,252	92,539	385,713	48,973	3,888	6,960	4,664	3,451	61,312	79,837	85,871	13,883	6,450	1,816	702,818
1932:															
Jan.	42,638	10,304	32,334	4,893	732	756	460	457	5,155	8,815	8,913	1,796	831	199	65,341
Feb.	42,008	8,008	34,000	4,533	803	696	460	334	4,814	6,011	6,534	1,060	352	203	59,800
Mar.	39,903	6,658	33,245	3,462	284	501	460	217	4,946	6,863	6,299	774	715	77	57,843
Apr.	36,670	4,682	31,988	3,210	365	459	345	130	6,722	6,090	4,935	962	487	99	55,792
May	40,297	5,677	34,620	3,824	304	595	344	118	6,552	6,551	6,012	964	416	278	60,578
June	36,566	5,665	30,901	3,444	359	481	345	166	5,610	7,516	5,507	1,218	394	139	56,080
July	40,723	5,346	35,377	3,501	99	442	400	184	5,779	6,257	6,145	1,233	232	141	59,790
Aug.	39,327	7,371	31,956	4,717	129	506	400	300	4,803	4,882	7,244	1,088	303	49	56,377
Sept.	41,973	8,869	33,104	5,238	122	614	400	340	3,858	6,485	7,664	1,621	318	78	59,733
Oct.	37,931	9,798	28,133	2,945	139	583	350	428	4,022	7,051	8,944	1,147	414	247	54,403
Nov.	40,098	10,072	30,026	4,146	185	688	350	371	4,368	6,250	9,080	809	1,164	156	57,588
Dec.	40,118	10,089	30,029	5,801	367	644	350	406	4,683	7,066	8,594	1,211	824	150*	59,493
1933:															
Jan.	46,599	7,857	38,742	4,602	318	590	350	305	4,766	5,630	6,729	968	554	125*	63,718
Feb.	37,564	6,167	31,397	5,064	304	541	350	368	4,895	5,119	5,683				
Mar.	42,059	7,964	34,095	4,827		571		304							

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 1,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 98 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,998
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,409
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,222
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,178
1924	319,108	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,298
1925	385,596	4,061	32,956	33,987	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	34,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	35,892	26,405	20,521	11,881	12,018	9,490	6,482	636	4,224	2,055	2,672	632,768
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,483	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,638
1930	458,036	120,069	68,503	45,496	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	822,445
1931	475,993	86,170	46,466	39,688	25,261	43,483	10,149	30,671	7,649	11,009	2,220	6,360	2,605	7,717	794,641
1932	393,844	52,383	42,506	45,121	20,917	56,027		30,763			2,851	7,252	4,359	10,244	
1932:															
Jan.	32,028	3,248	2,588	3,303	1,746	5,782	627	3,258	622	521	479	840	462	197	55,701
Feb.	26,488	5,930	2,898	4,356	1,723	6,781	1,189	2,931	758	506	500	708	313	306	55,382
Mar.	43,361	3,585	2,482	3,436	2,588	5,398	1,423	2,745	1,211	721	112	456	359	644	68,521
Apr.	36,326	6,826	2,956	3,737	1,600	3,684	1,083	764	1,549	847	348	474	417	1,259	61,870
May	32,818	1,110	2,277	3,447	1,416	3,917	1,033	3,743	2,048	517	286	707	272	350	54,041
June	39,136	1,853	3,666	3,405	2,834	2,834	1,534	5,291	1,421	449	127	578	196	280	63,604
July	30,494	4,081	3,125	3,380	1,529	2,544	1,116	1,735	624	723	—214	784	258	1,207	51,386
Aug.	32,650	6,672	4,919	4,006	970	3,390	1,615	1,740	751	1,211	—66	611	210	557	59,236
Sept.	26,865	5,688	5,845	3,674	2,770	5,878	971	1,376	625	964	103	534	267	406	55,966
Oct.	34,748	4,627	4,715	4,177	1,207	5,653	510	1,853	569	627	553	537	489	986	61,251
Nov.	27,689	5,836	3,880	3,577	1,593	4,563	1,265	1,481	1,653	1,035	275	489	631	650	54,567
Dec.	31,246	3,927	3,205	4,623	941	5,603	2,103	3,720	745	1,298	348	544	485	2,602	60,390
1933:															
Jan.	29,260	3,277	5,858	4,241	1,189	7,611	3,005		1,275	1,388	308	640	252		
Feb.	22,970	7,103	6,603	4,460	1,175	8,508	994		2,000		375				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

A Section Devoted to Listings of Leading Producers and Distributors of Raw Materials, Machinery and Equipment, and Supplies for the Rubber Industry.

The Market Place

Chemicals and Compounding Materials — Machinery and Equipment—Crude, Reclaimed and Scrap Rubber—Fabrics—Rubber Products — Consulting Engineers.

Chemicals and Compounding Materials —

ACCELERATORS—
Ureka C—Ureka Blend B—Ereka.—A-1, A-7, A-11, A-16, A-19, A-32, Z-88, A-510, DPG
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